

# KIC 011036972

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011036972-01	OBS	No	1.020557	131.809893	71.6	3.740	15.7	7.5	2.98	4955	3.07	13217.17
011036972-02	OBS	No	429.246246	179.262160	1289.7	6.874	14.0	4.3	2.98	4955	10.40	4.19
011036972-03	OBS	No	211.151208	165.355494	7.9	1.293	13.4	0.1	2.98	4955	0.98	10.80
011036972-04	OBS	No	195.212733	272.157520	1557.8	3.014	12.2	7.2	2.98	4955	11.57	11.99
011036972-05	OBS	No	218.996531	188.473447	2128.3	16.978	10.6	5.3	2.98	4955	16.93	10.29
011036972-06	OBS	No	213.271097	204.974825	807.5	4.853	11.3	3.9	2.98	4955	8.26	10.66
011036972-07	OBS	No	74.943778	202.204954	1102.9	15.979	9.6	5.8	2.98	4955	9.70	42.98
011036972-08	OBS	No	178.823053	210.737521	1175.6	5.577	11.6	5.7	2.98	4955	10.79	13.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011036972-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
011036972-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
011036972-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
011036972-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
011036972-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS—HALO_GHOST
011036972-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_KIC_POS
011036972-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS—HALO_GHOST
011036972-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_NOFITS— HALO_GHOST

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

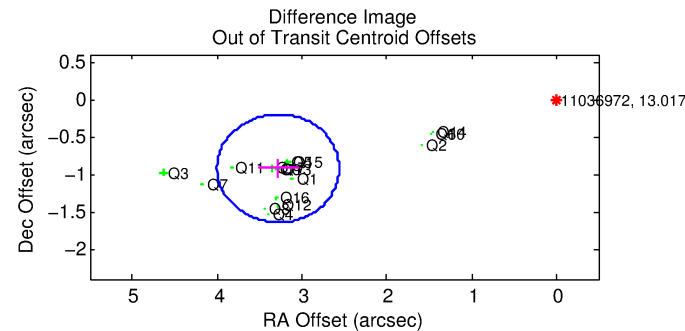
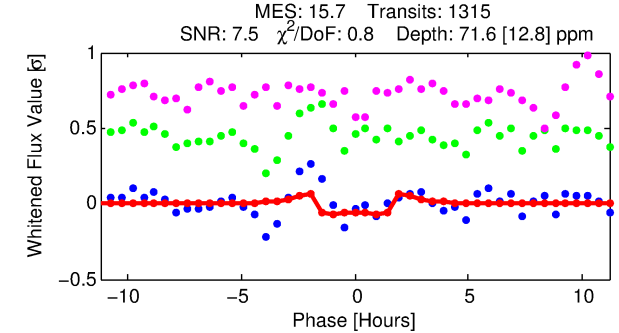
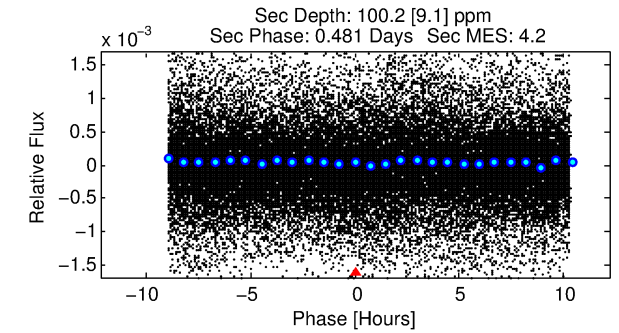
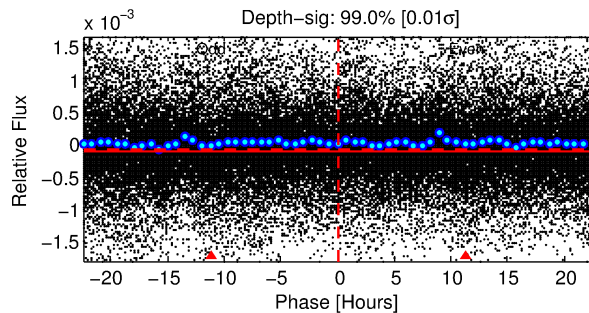
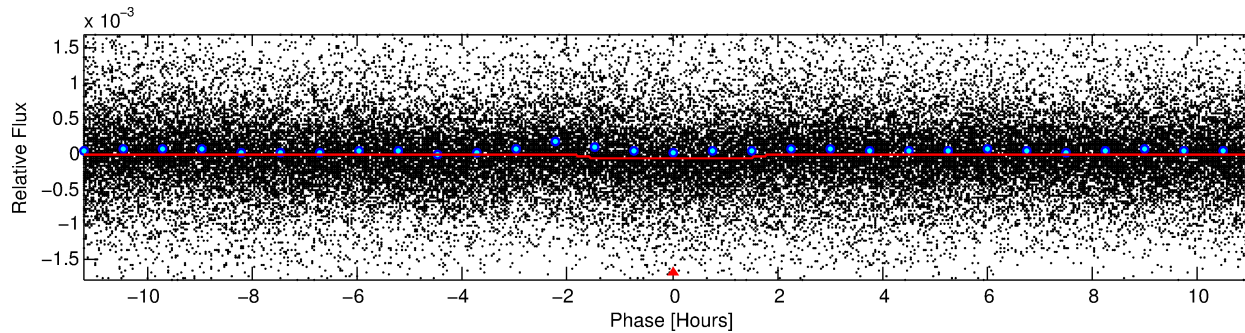
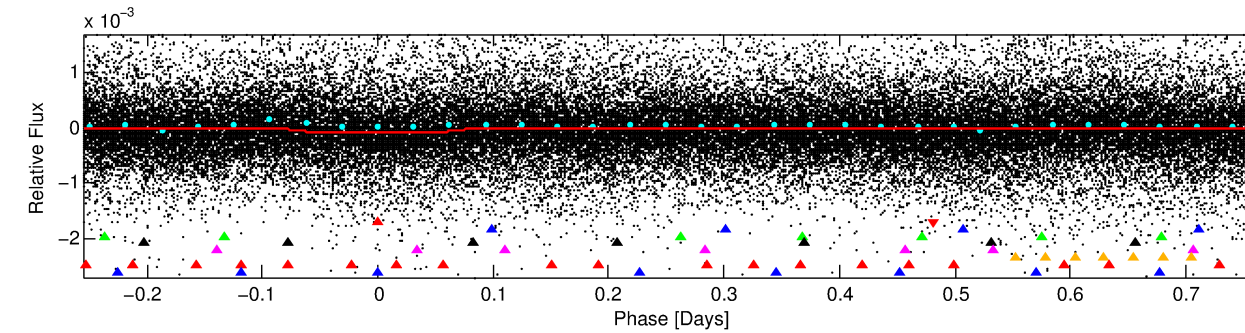
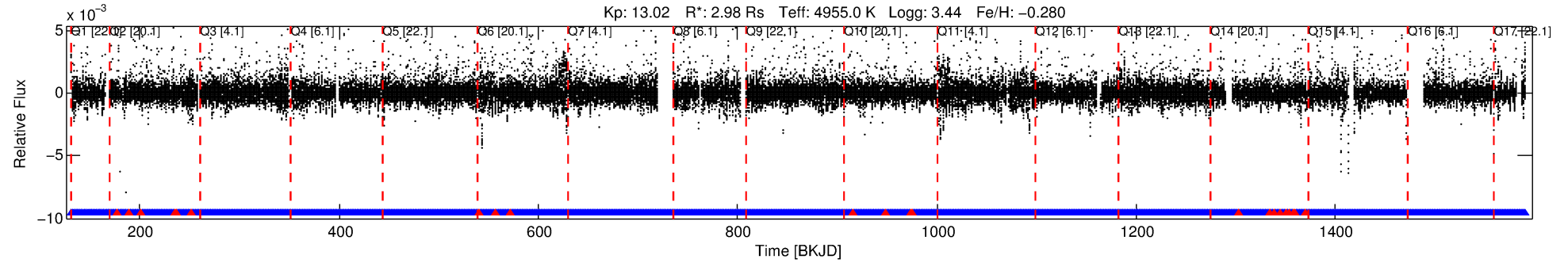
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011036972-01

No Significant Match Found

# DV One-Page Summary

KIC: 11036972 Candidate: 1 of 8 Period: 1.021 d



## DV Fit Results:

Period = 1.02056 [0.00001] d  
Epoch = 131.8099 [0.0026] BKJD  
Rp/R\* = 0.0095 [0.0034]  
a/R\* = 1.33 [0.84]  
b = 0.90 [0.30]  
Seff = 13217.17 [7917.72]  
Teff = 2734 [409] K  
Rp = 3.07 [2.02] Re  
a = 0.0190 [0.0082] AU  
Ag = 2.12 [1.98] [0.56 $\sigma$ ]  
Teffp = 5099 [936] K [2.31 $\sigma$ ]

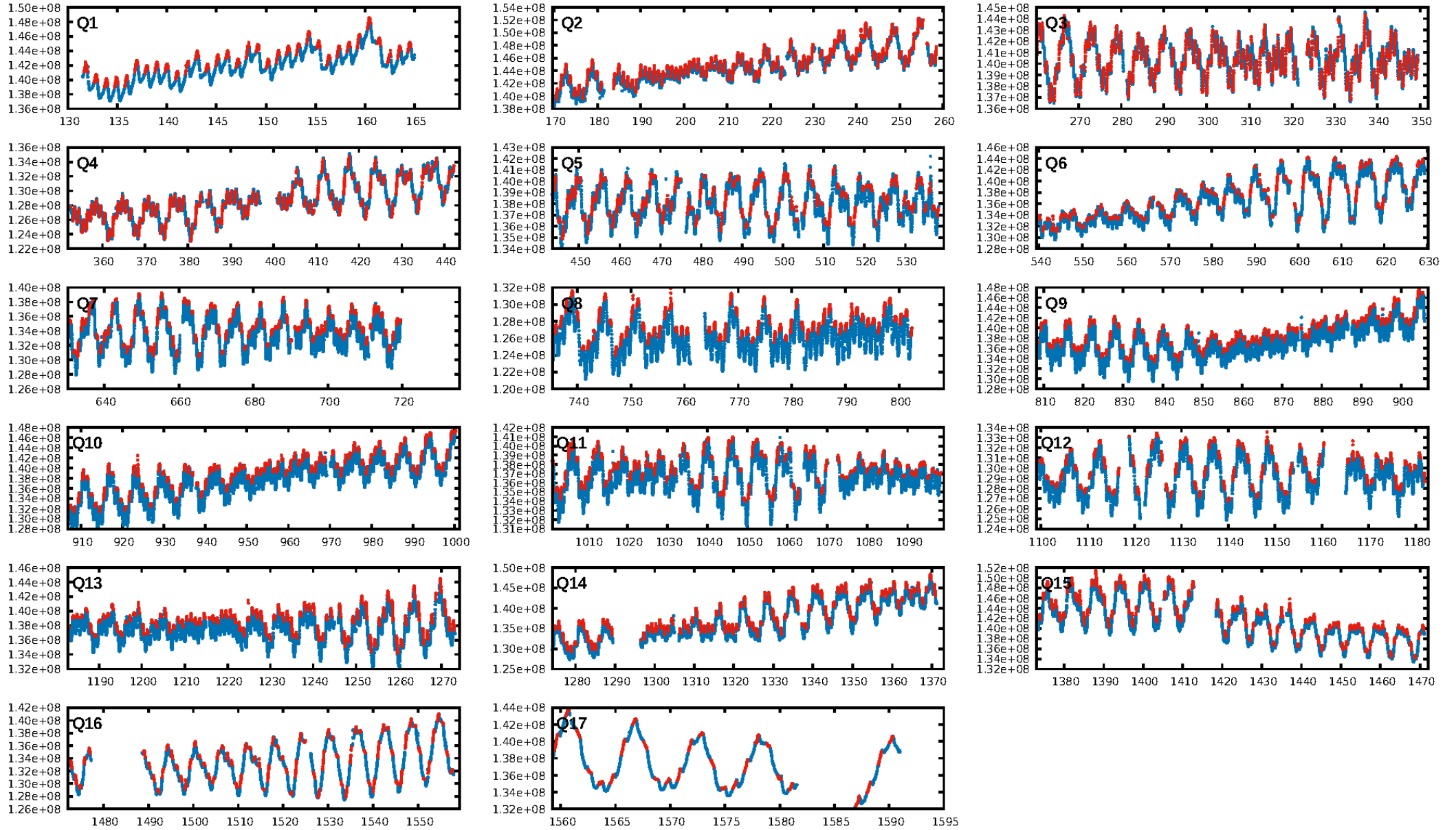
## DV Diagnostic Results:

ShortPeriod-sig: N/A  
LongPeriod-sig: 100.0% [108.11 $\sigma$ ]  
ModelChiSquare2-sig: N/A  
ModelChiSquareGof-sig: N/A  
Bootstrap-pfa: N/A  
RollingBand-fgt: 0.98 [1234/1256]  
GhostDiagnostic-chr: 2.244  
Centroid-sig: 0.1%  
Centroid-so: 0.499 arcsec [0.73 $\sigma$ ]  
OotOffset-rm: 3.407 arcsec [14.17 $\sigma$ ]  
KicOffset-rm: 0.371 arcsec [5.36 $\sigma$ ]  
OotOffset-st: 4/4/4/5 [17]  
KicOffset-st: 4/4/4/5 [17]  
DiffImageQuality-fgm: 0.06 [1/17]  
DiffImageOverlap-fno: 1.00 [17/17]

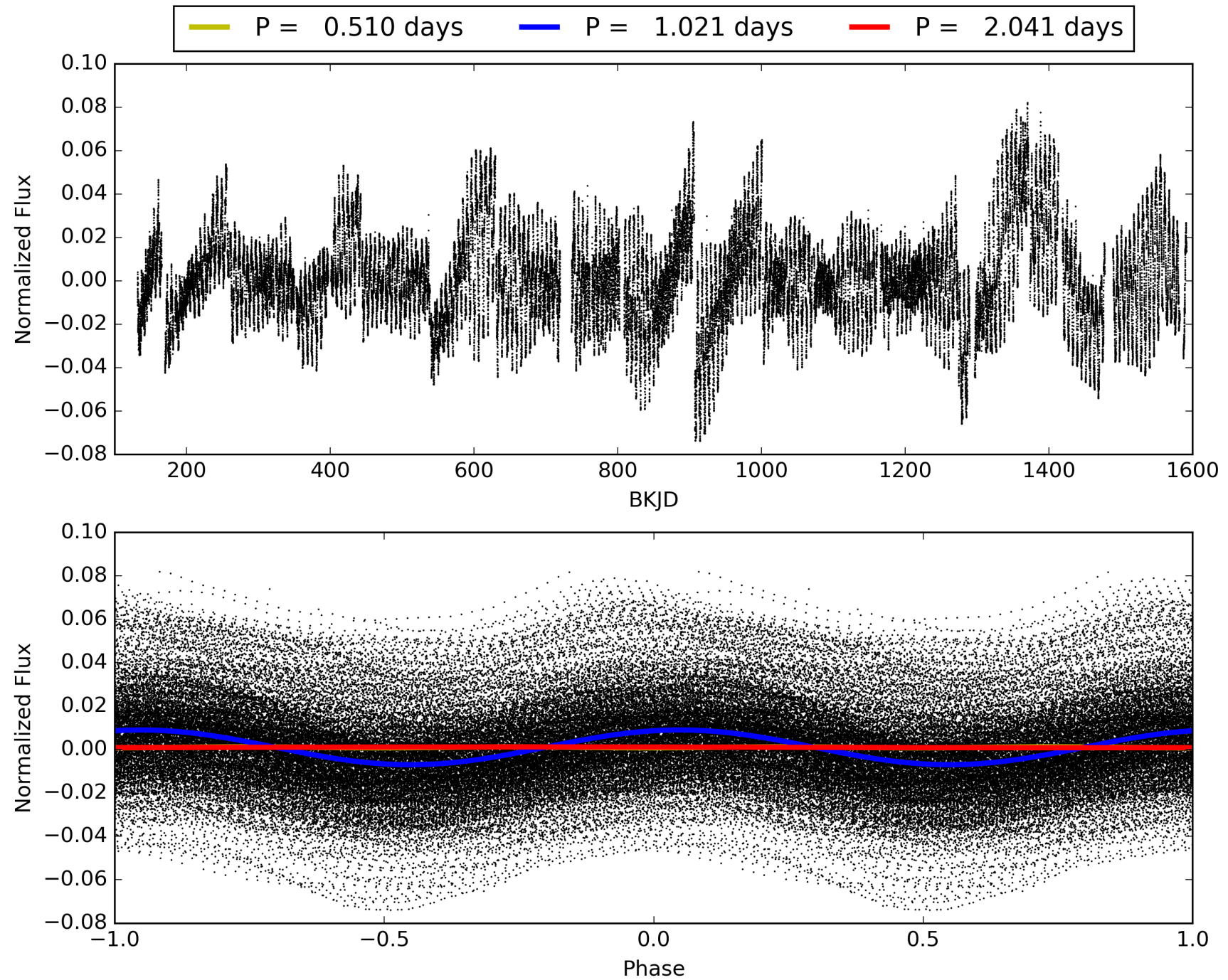
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:14:28 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011036972-01, PDC Light Curves



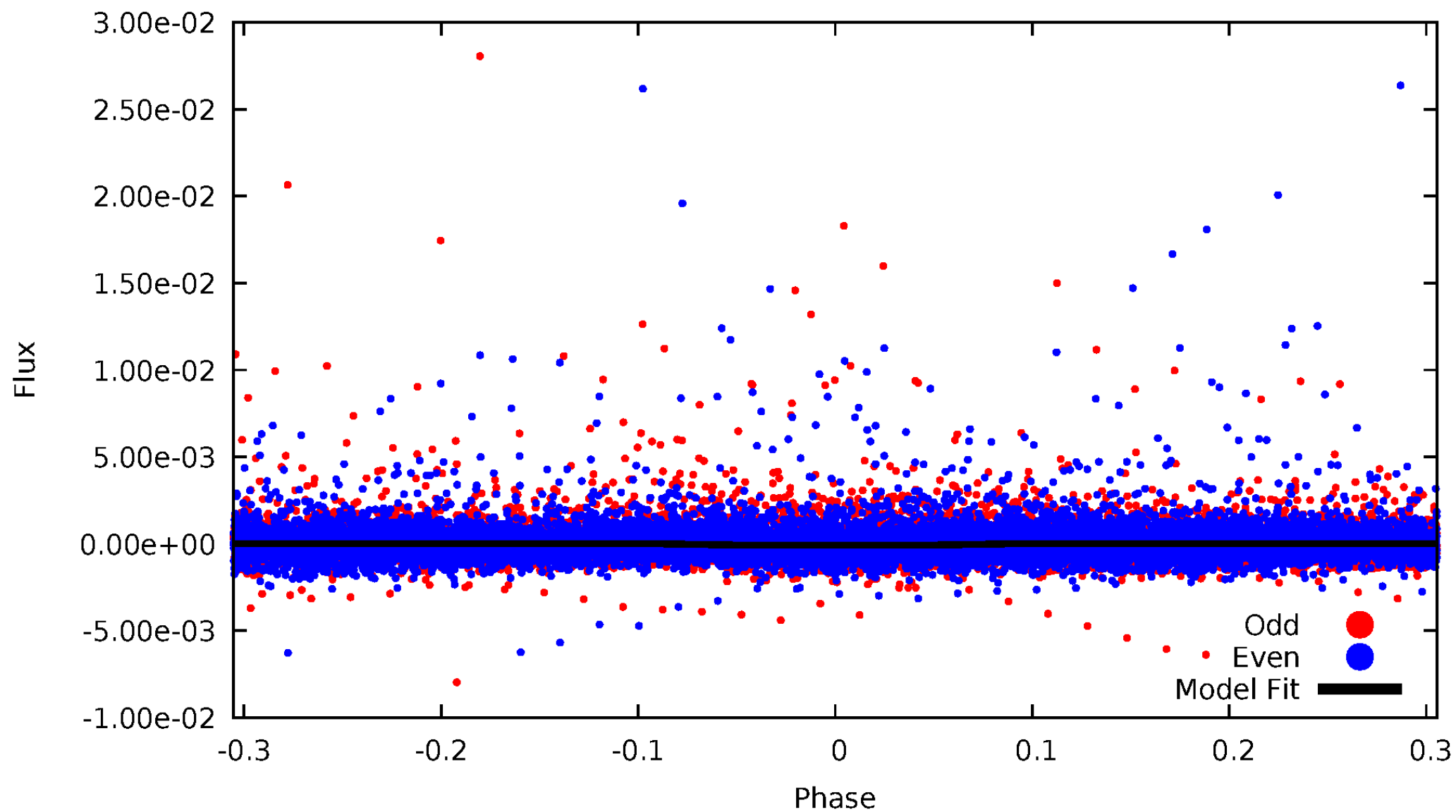
TCE 011036972-01





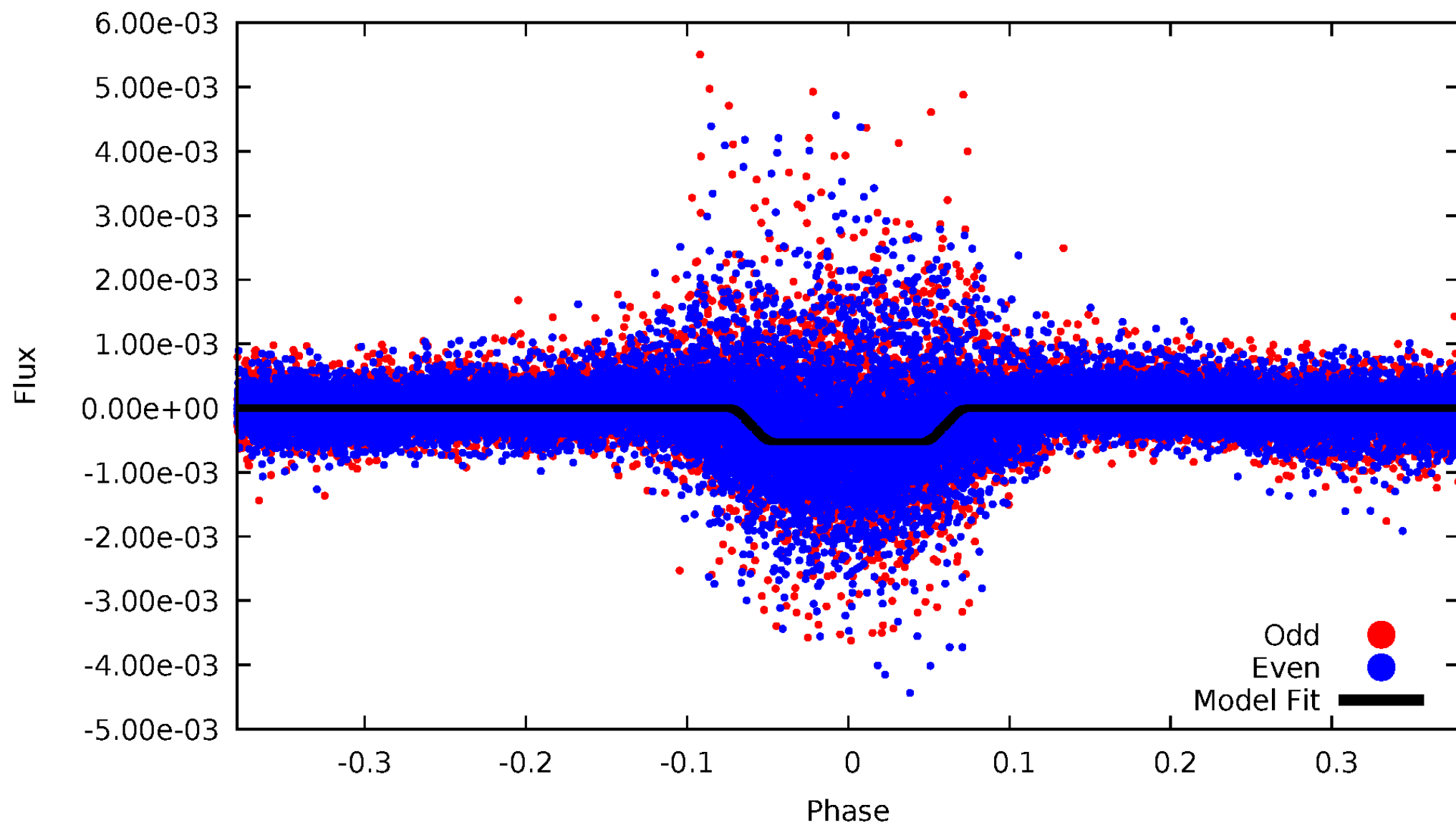
# DV Odd/Even

TCE 011036972-01



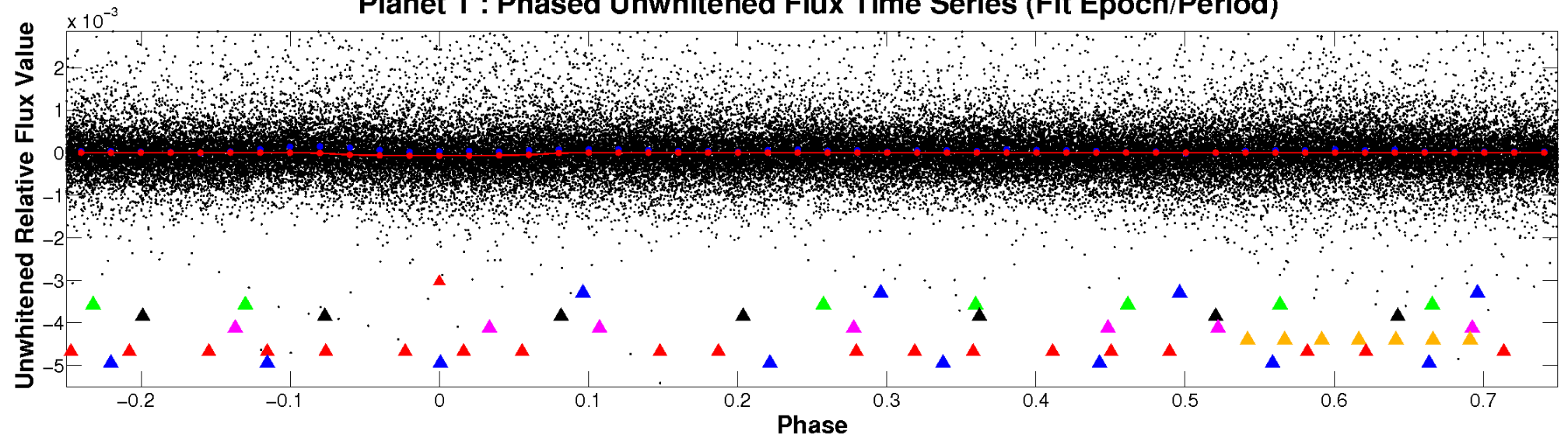
# ALT Odd/Even

TCE 011036972-01

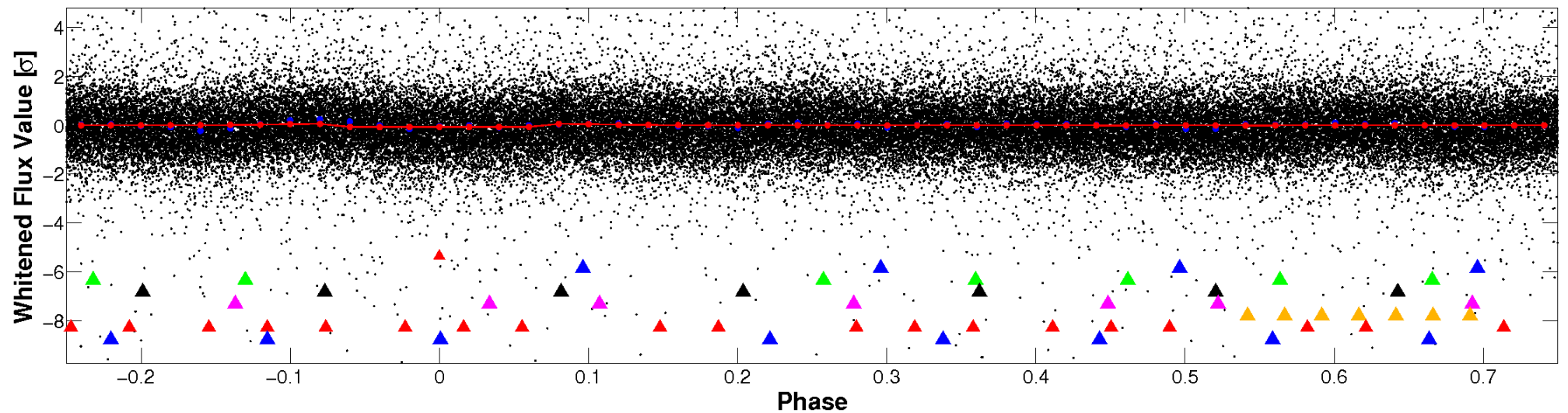


# Non-Whitened Vs. Whitened Light Curve

**Planet 1 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)**

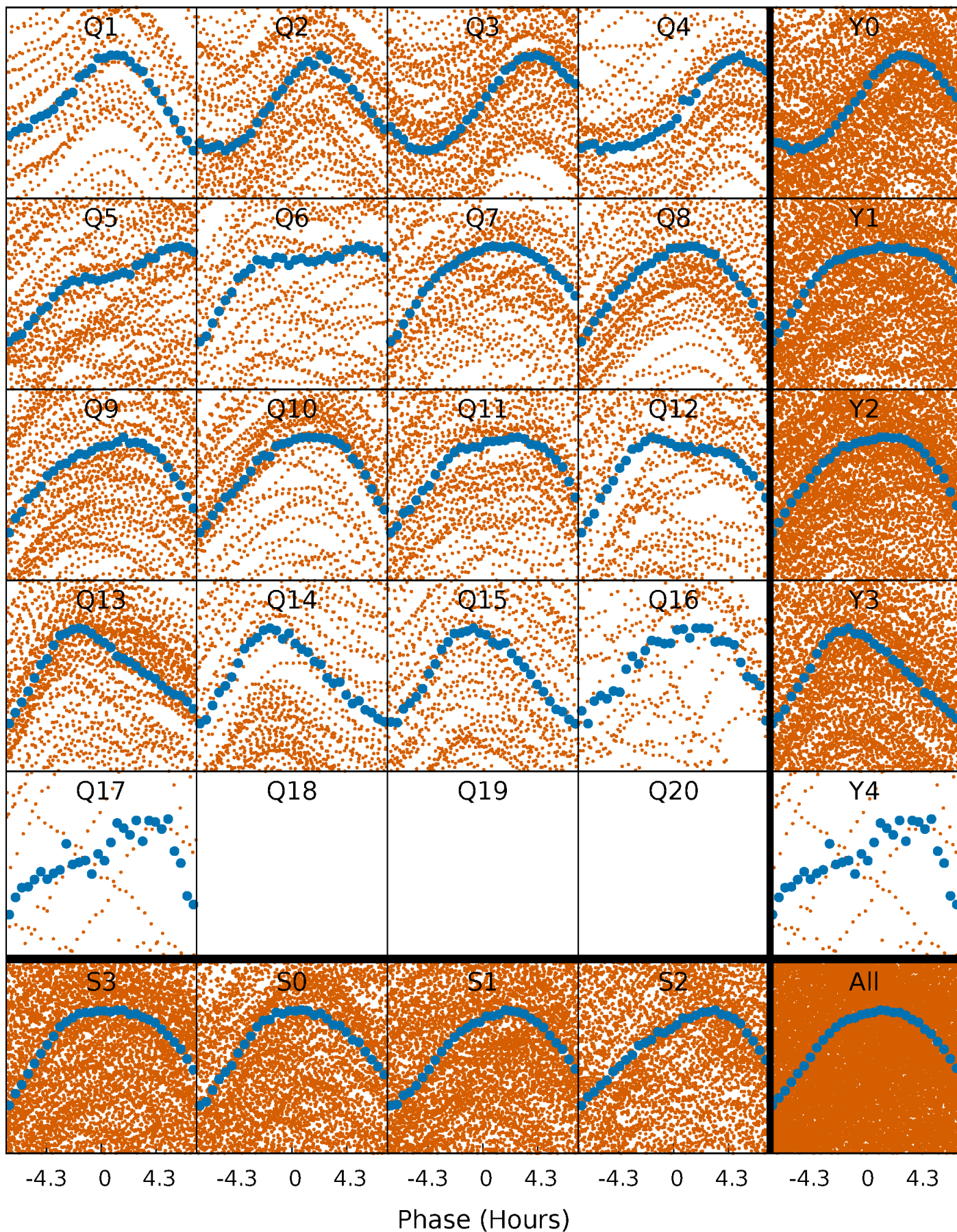


**Planet 1 : Phased Whitened Flux Time Series (Fit Epoch/Period)**



# PDC Quarter-Phased Transit Curves

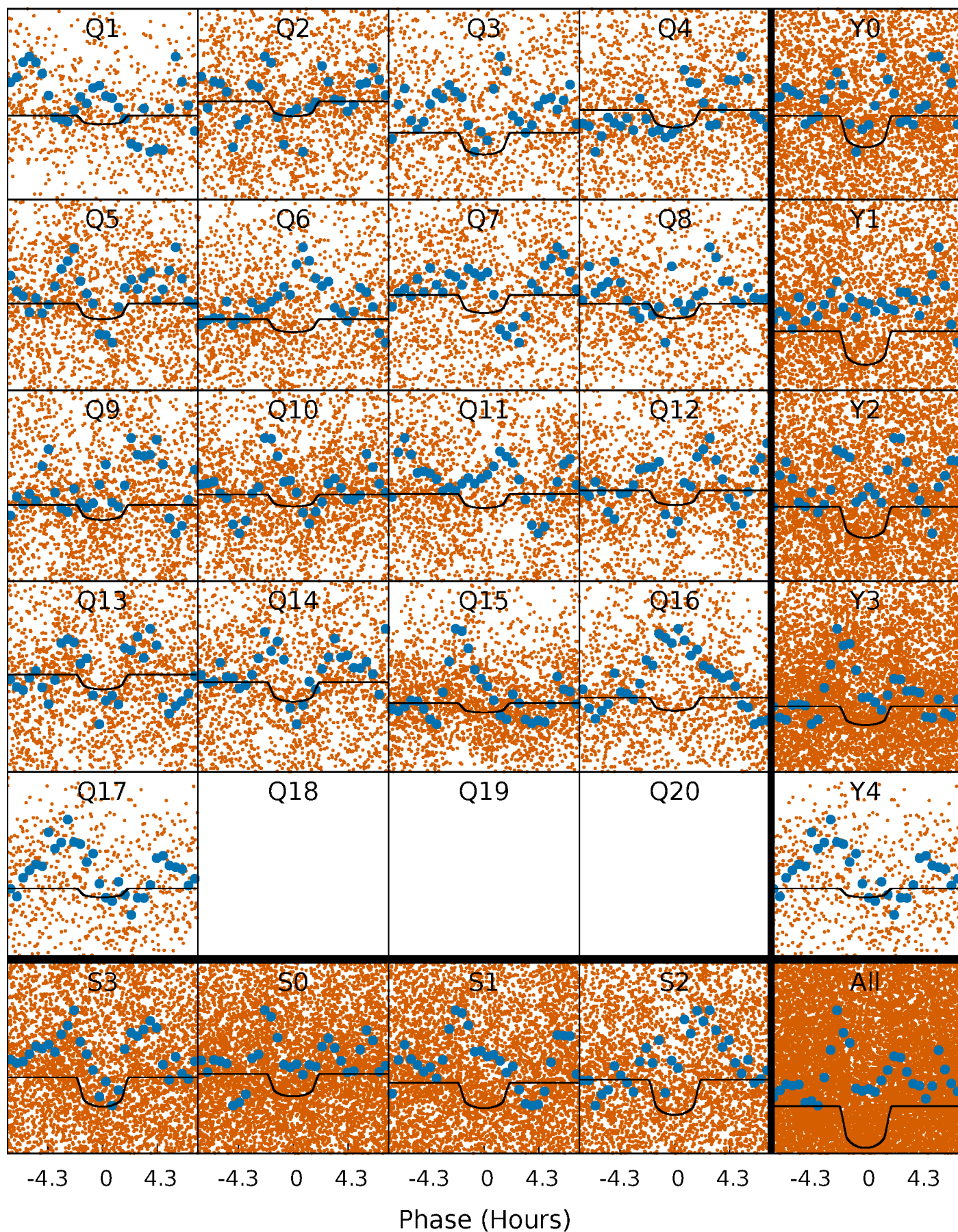
TCE 011036972-01 P= 1.020557 Days  $T_0=131.809893$  (BKJD)





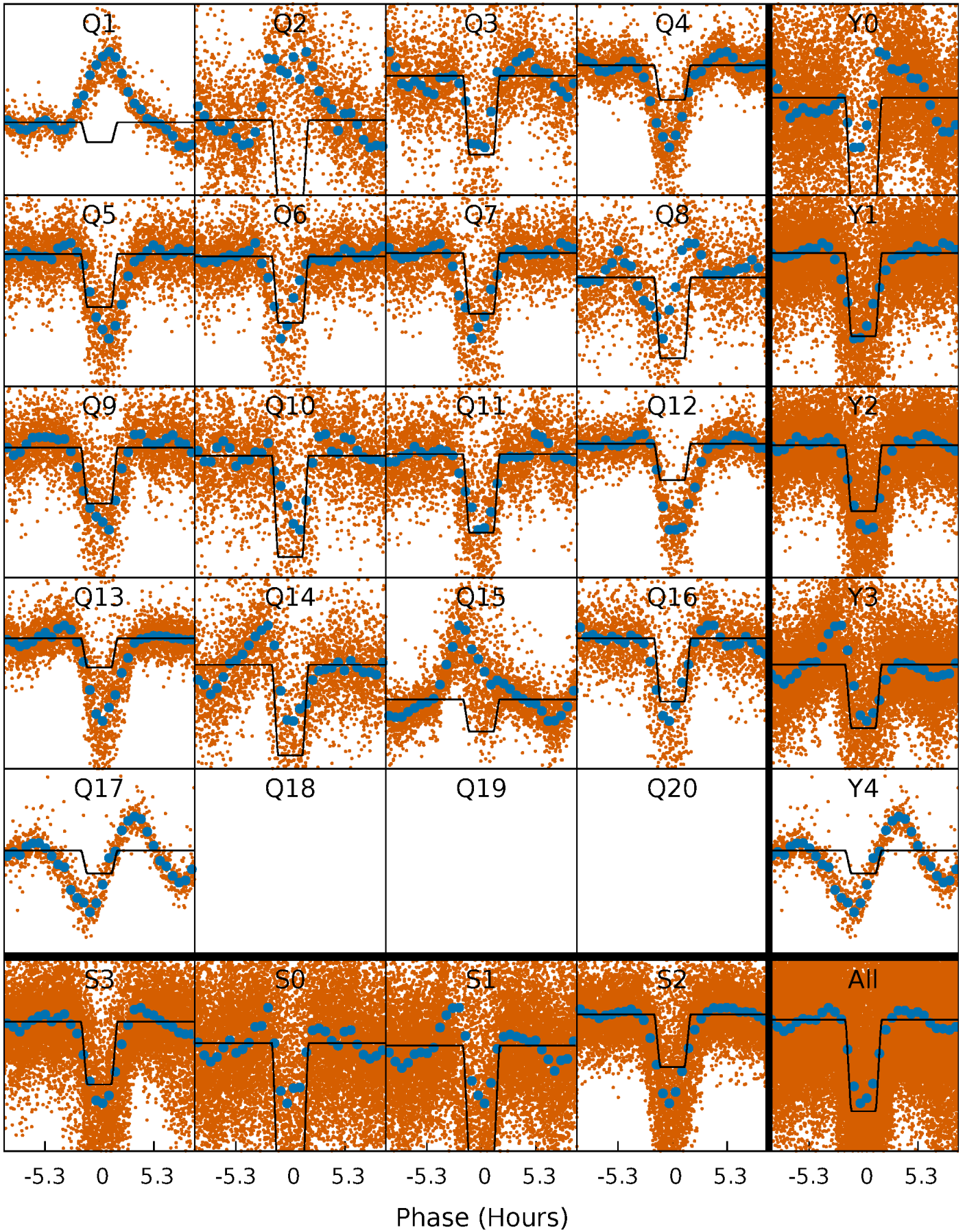
# DV Quarter-Phased Transit Curves

TCE 011036972-01 P= 1.020557 Days  $T_0=131.809893$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

TCE 011036972-01 P= 1.020581 Days  $T_0=131.805757$  (BKJD)

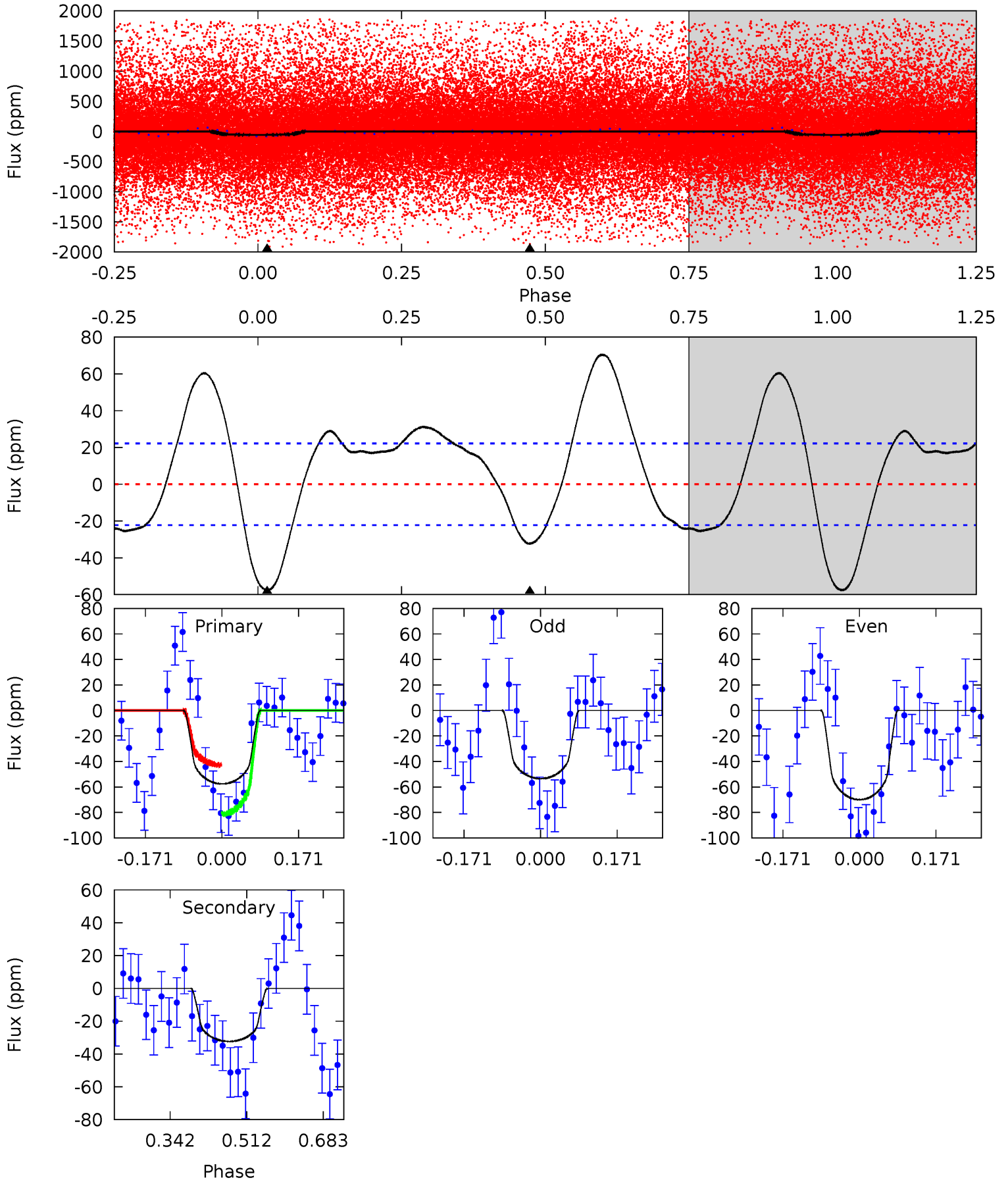




# DV Model-Shift Uniqueness Test

011036972-01, P = 1.020557 Days, E = 130.789336 Days

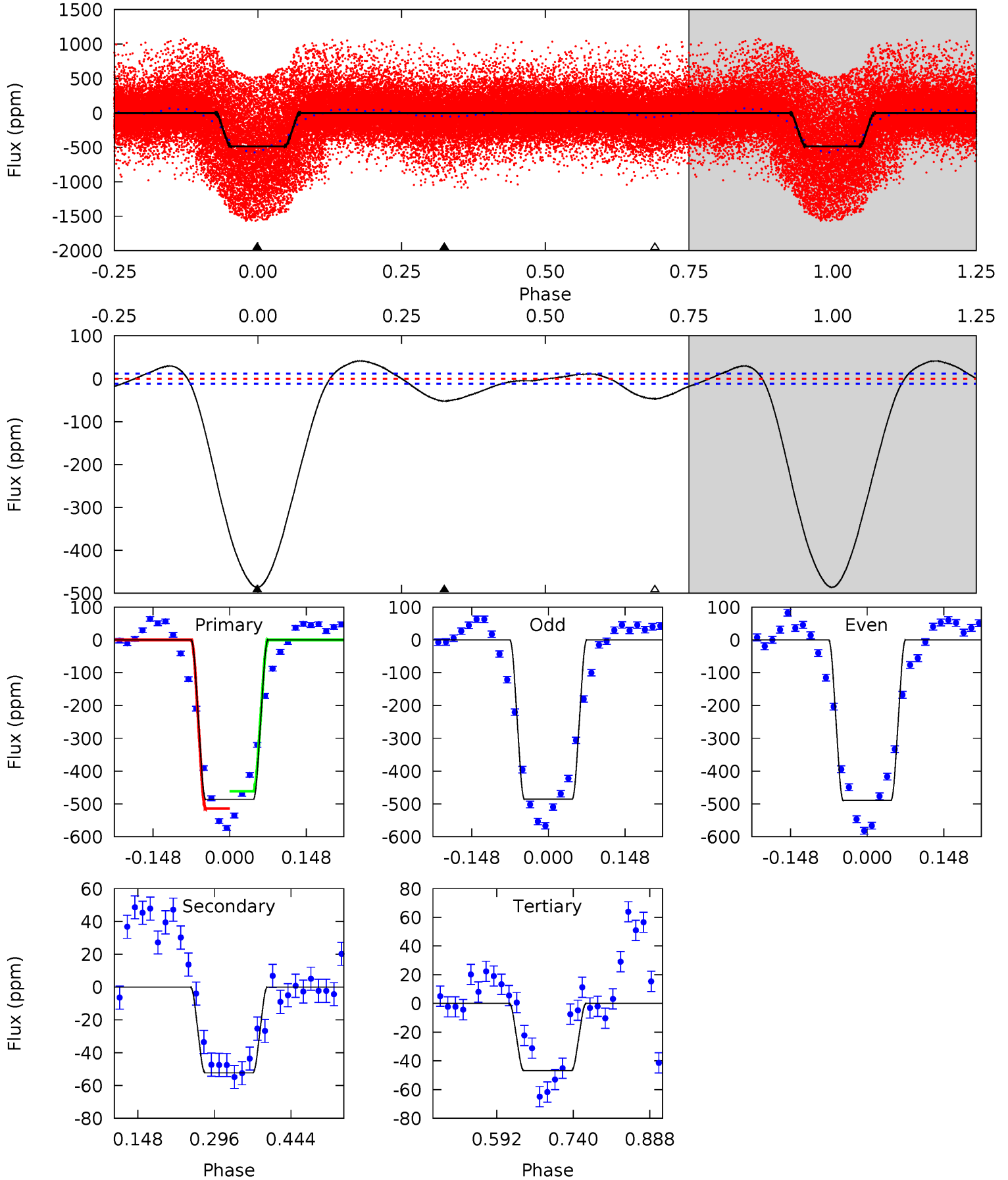
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
11.5	6.48	0	0	4.45	1.37	4.26	11.5	11.5	6.48	6.48	1.67	-1.05	0.55	3.85



# Alt Model-Shift Uniqueness Test

011036972-01, P = 1.020581 Days, E = 130.785176 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
182.9	19.7	17.6	0	4.48	1.45	8.83	165.3	182.9	2.08	19.7	0.71	0.86	0.08	9.50





### Stellar Parameters For KIC 011036972

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4955^{+137}_{-1}$	$3.436^{+0.300}_{-0.300}$	$-0.280^{+0.300}_{-0.200}$	$2.977^{+1.638}_{-0.882}$	$0.882^{+0.290}_{-0.134}$	$0.047^{+0.088}_{-0.030}$
	+3%/-0%	+9%/-9%	+107%/-71%	+55%/-30%	+33%/-15%	+186%/-64%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 011036972-01 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-32 \pm 5$	$3.03^{+1.47}_{-1.16}$	$3782^{+487}_{-361}$	$3687^{+1042}_{-1106}$	$0.723^{+1.246}_{-0.389}$
Alt.	$-52 \pm 3$	$7.37^{+2.52}_{-1.64}$	$3786^{+476}_{-383}$	$-3006^{+5397}_{-493}$	$0.191^{+0.132}_{-0.084}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature  
 $T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )  
 $A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$

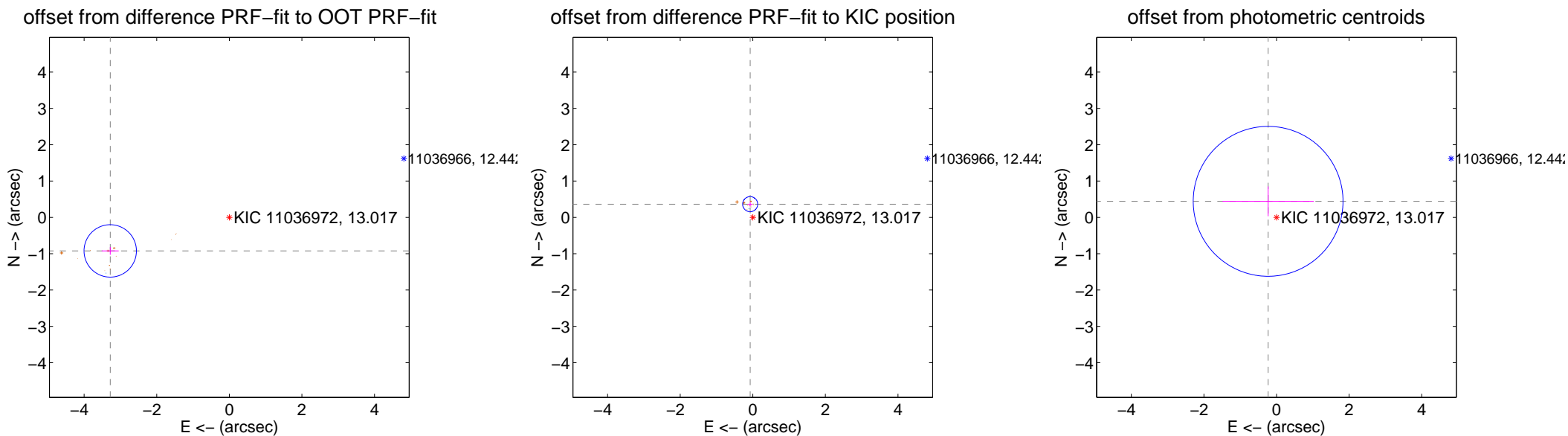
## DV Centroid Data

Supplemental centroid analysis for 011036972-01. Kepler magnitude: 13.02. Transit SNR 7.53

There are 1 quarters with good PRF difference image offsets

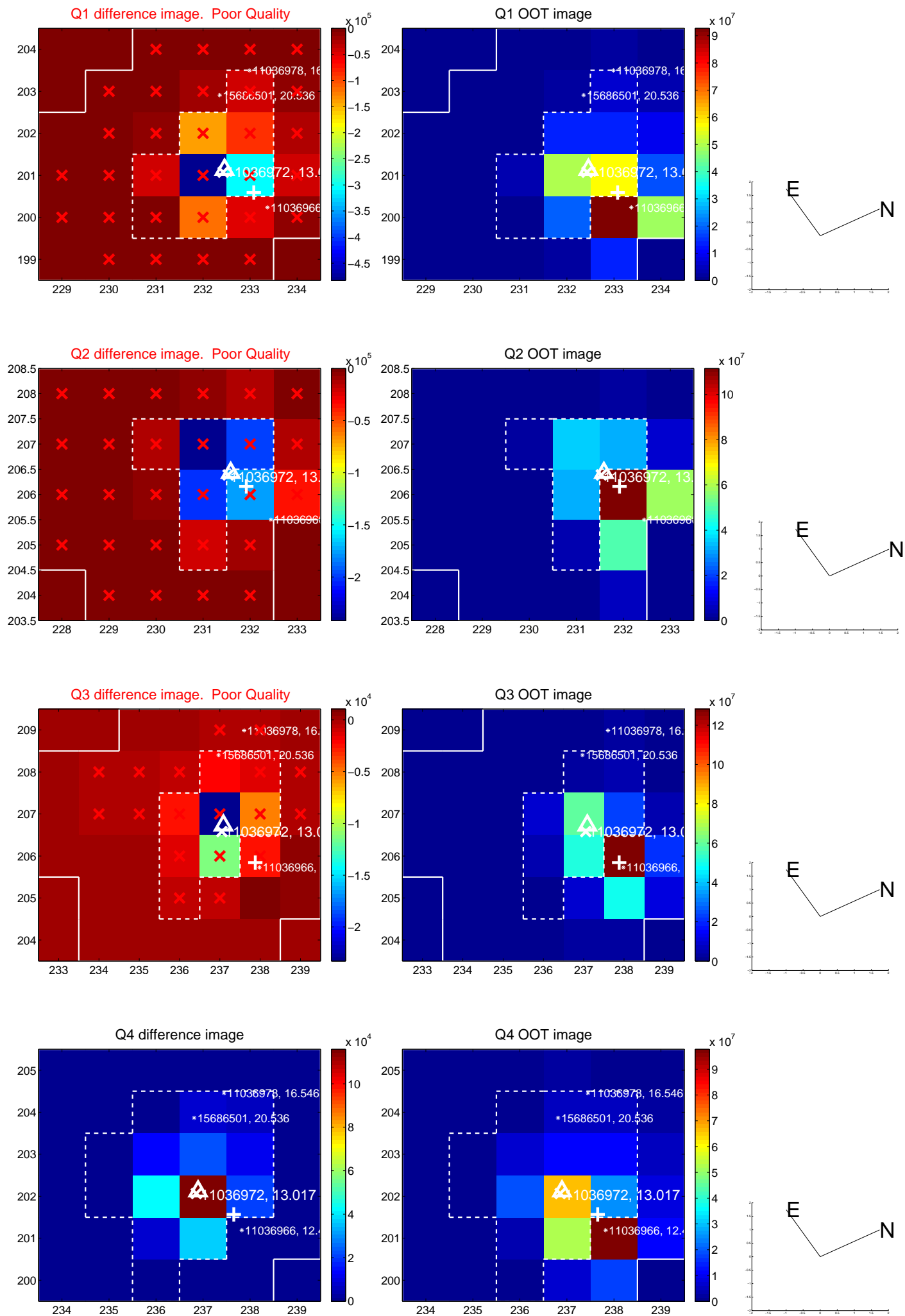
The OOT PRF centroid is offset from the target star catalog position by about 3.37 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.407 \pm 0.240$	14.17	$3.280 \pm 0.233$	$-0.923 \pm 0.105$
PRF-fit source offset from KIC position	$0.371 \pm 0.069$	5.36	$0.072 \pm 0.072$	$0.363 \pm 0.069$
photometric centroid source offset	$0.50 \pm 0.69$	0.73	$0.23 \pm 1.26$	$0.44 \pm 0.41$

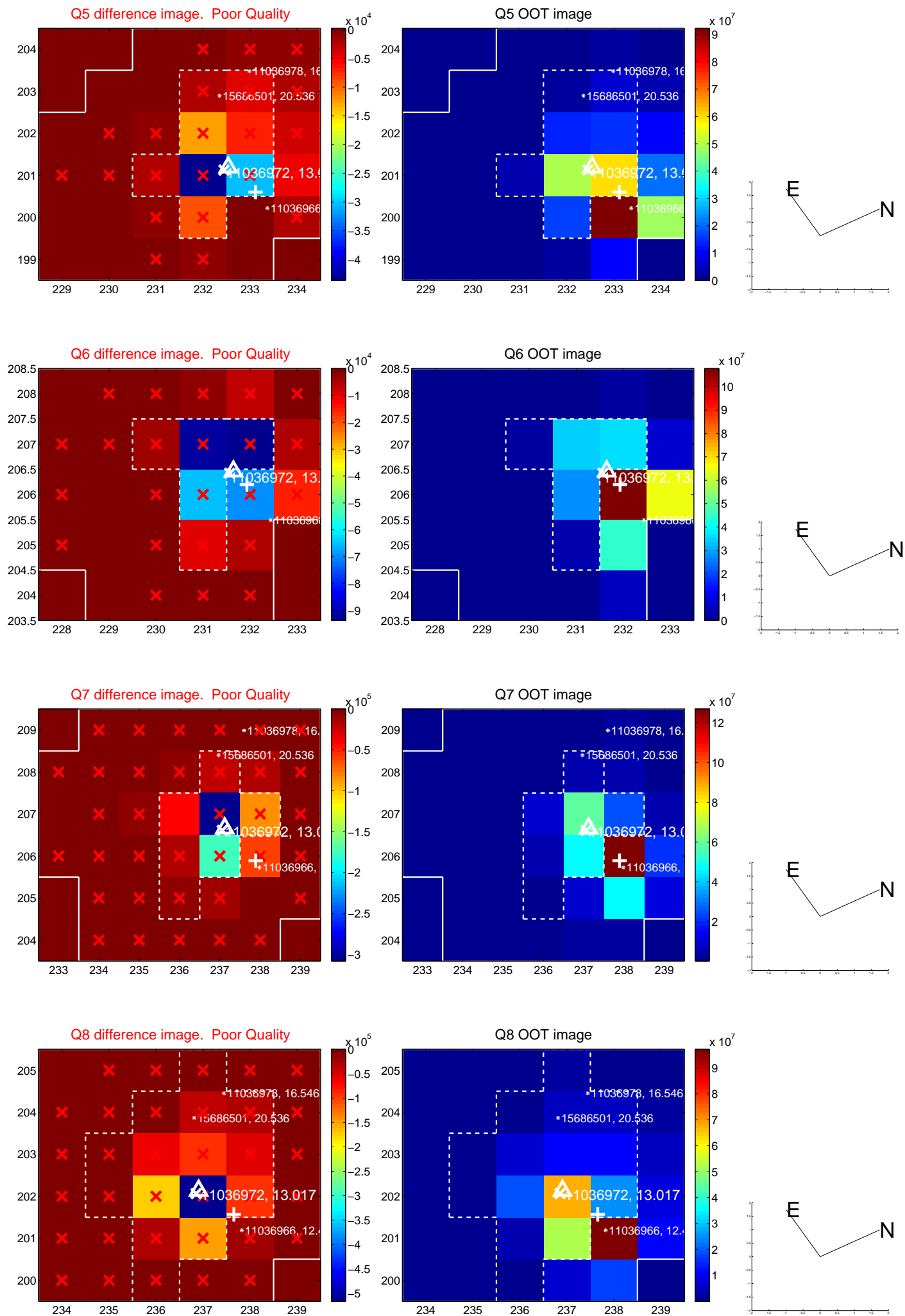


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

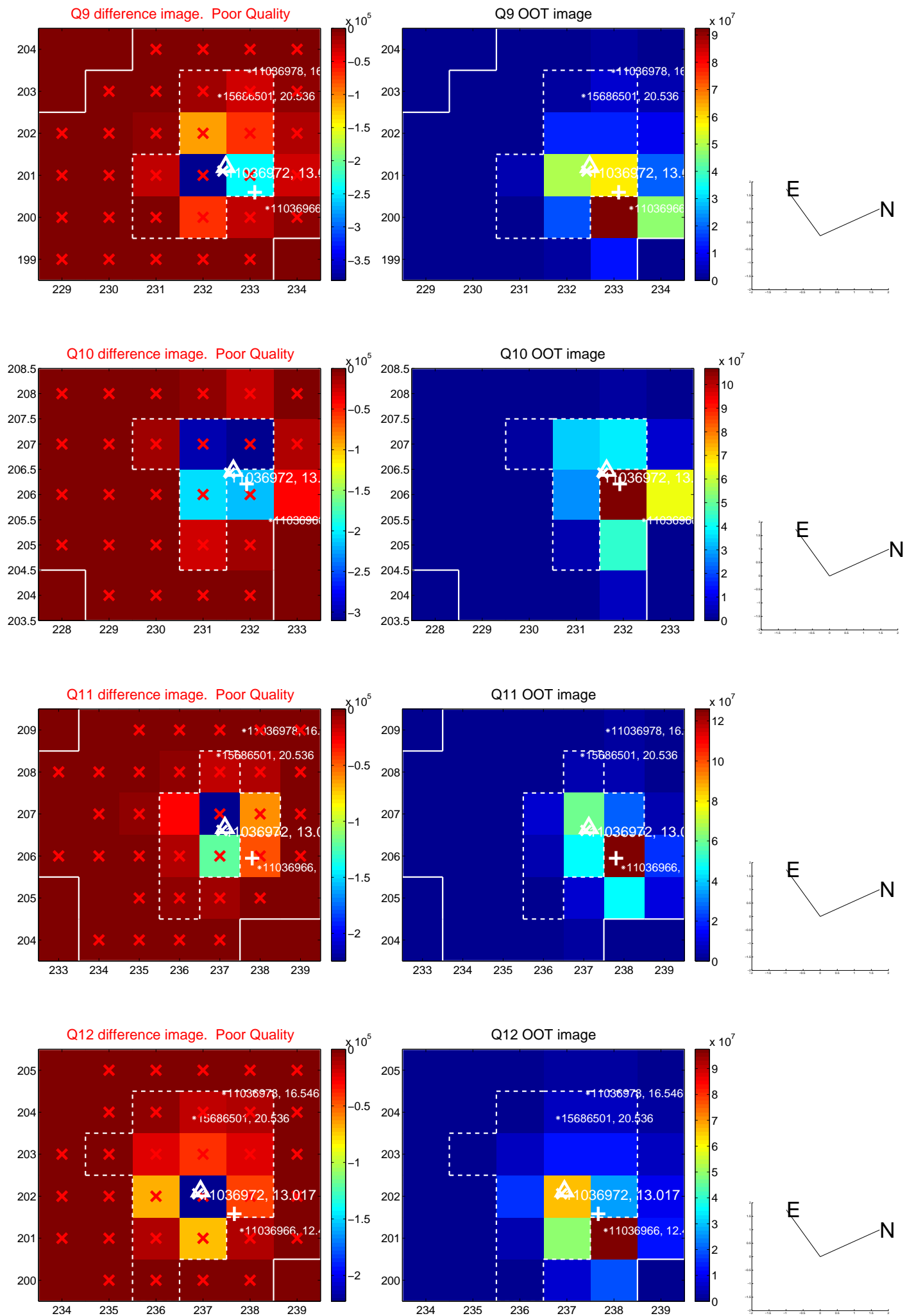


white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

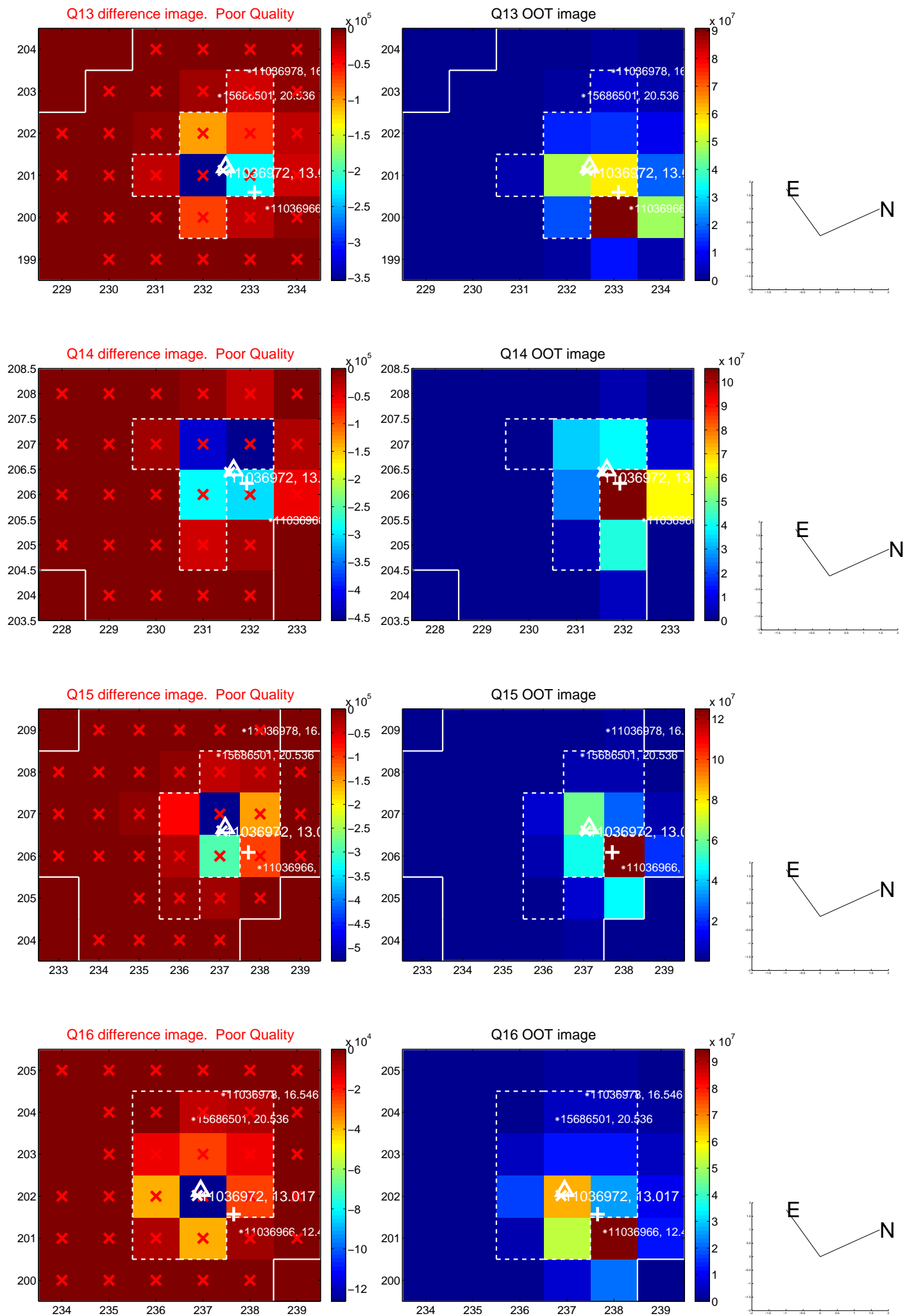




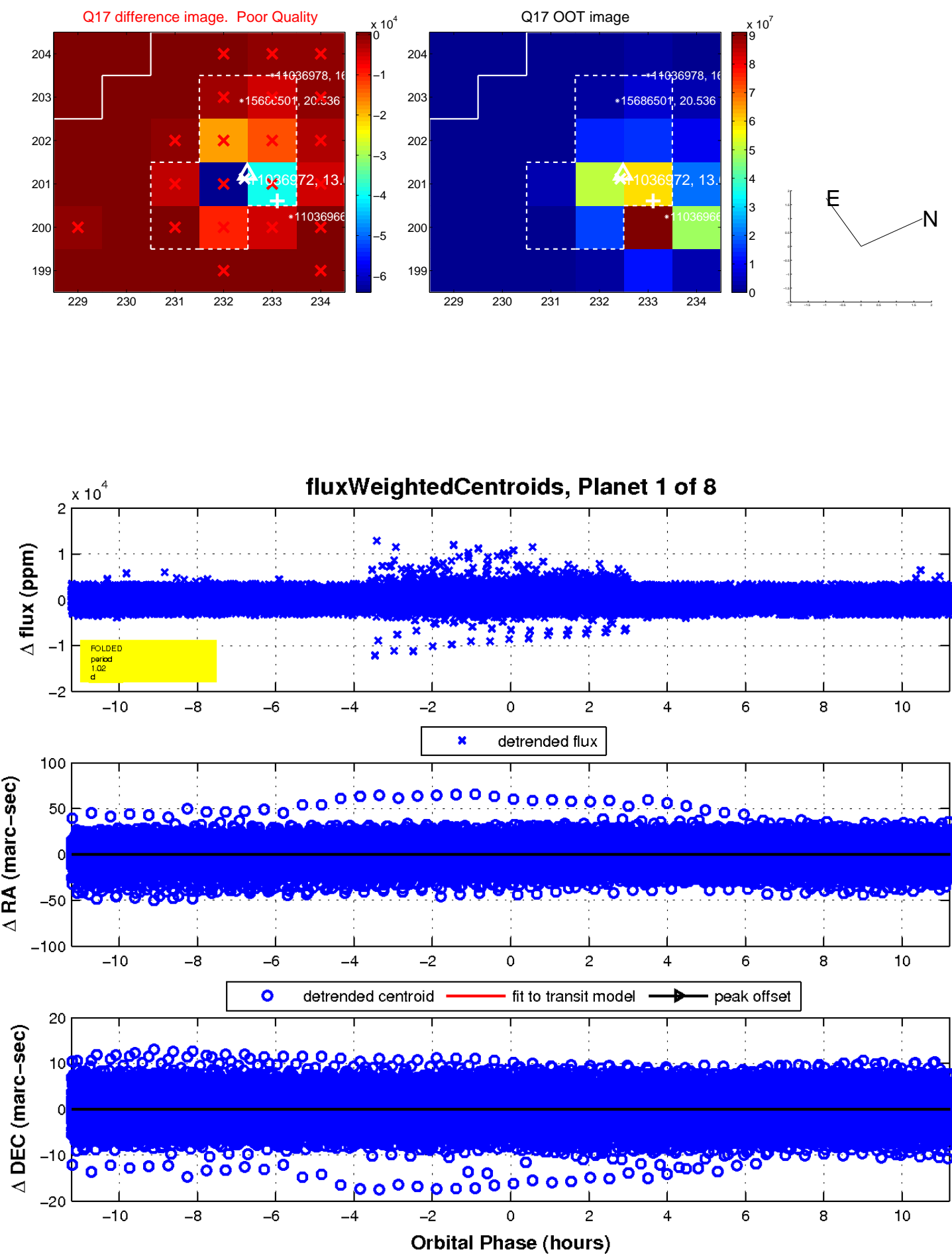
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white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

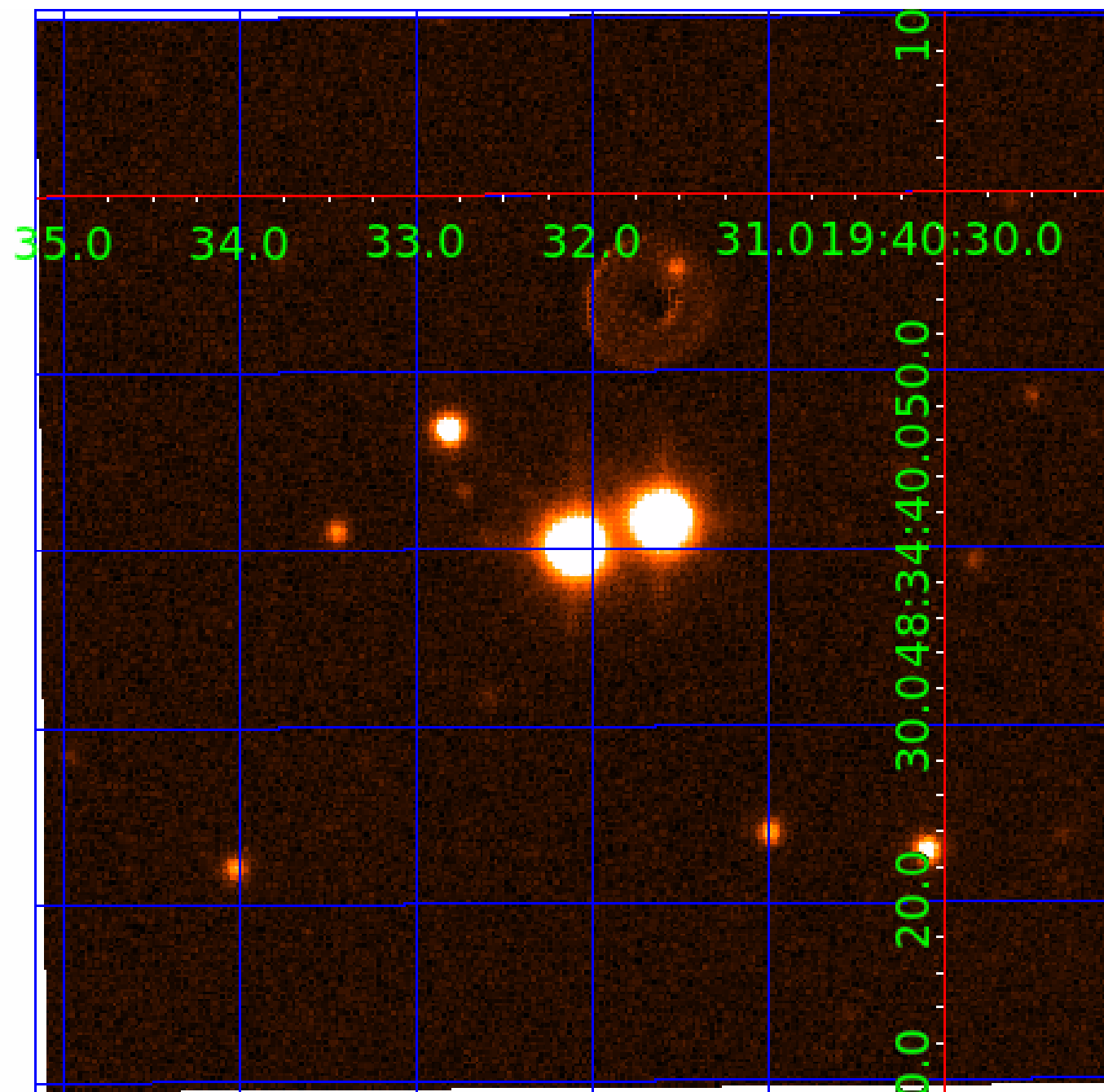


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UKIRT Image

Declination





# KIC 011036972

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
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## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
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011036972-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
011036972-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
011036972-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS—HALO_GHOST
011036972-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
011036972-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS—HALO_GHOST
011036972-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST

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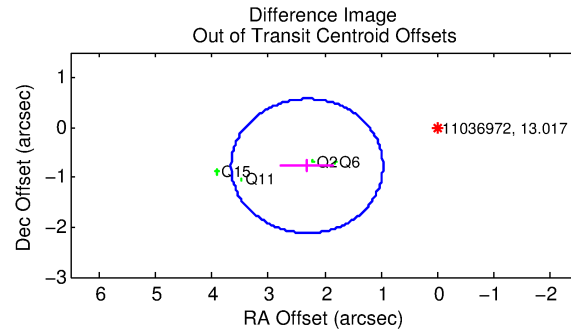
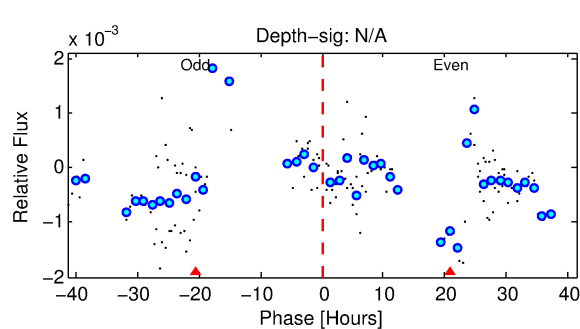
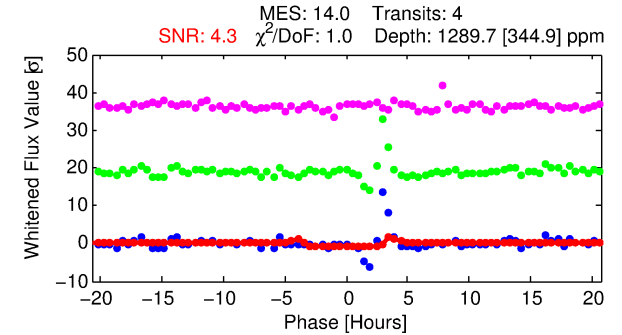
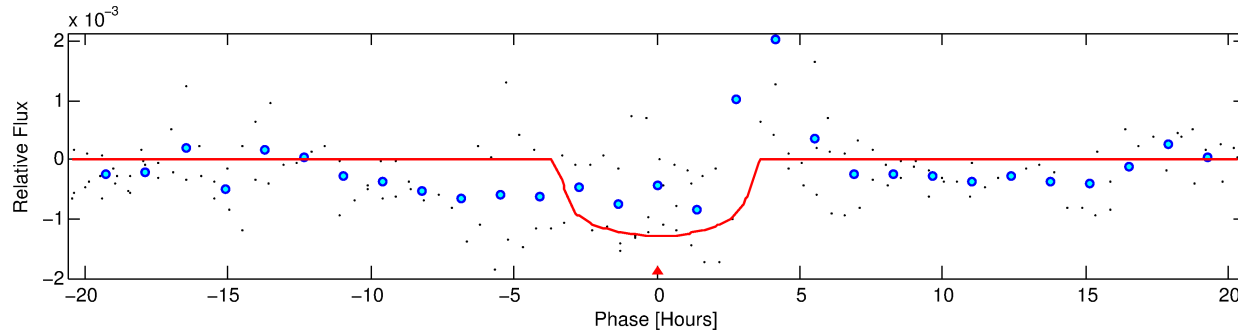
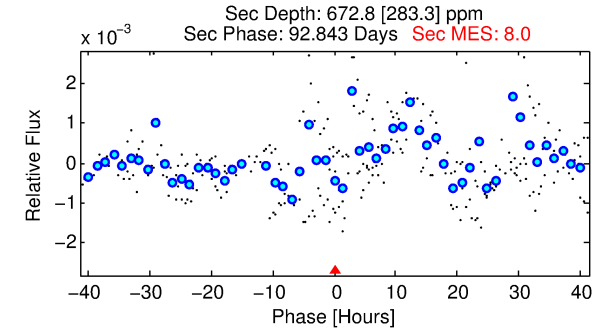
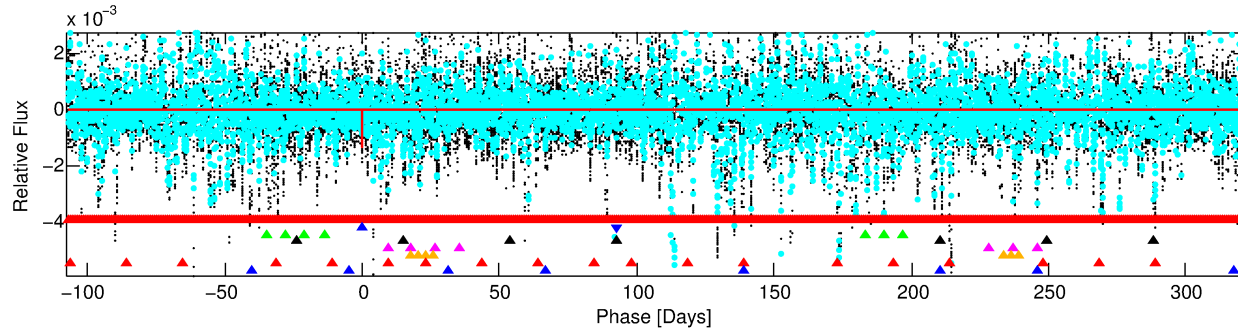
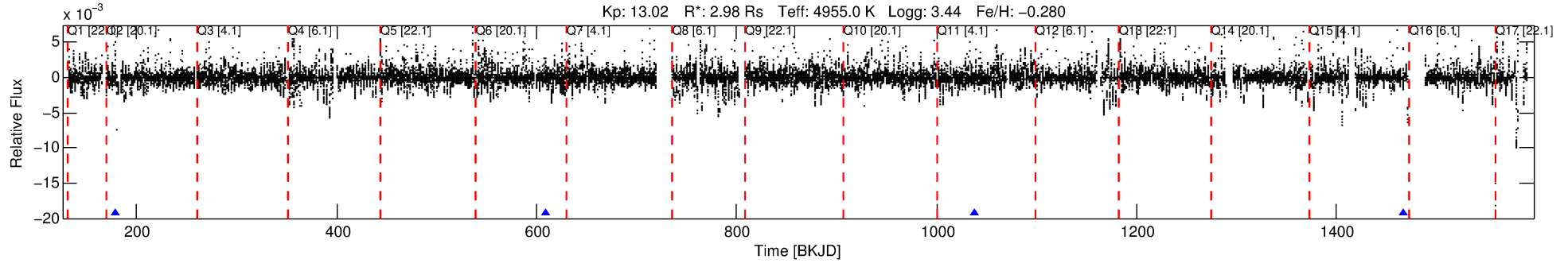
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

## Ephemeris Match Information For 011036972-02

No Significant Match Found

# DV One-Page Summary

KIC: 11036972 Candidate: 2 of 8 Period: 429.246 d



## DV Fit Results:

Period = 429.24625 [0.00634] d  
Epoch = 179.2622 [0.0139] BKJD  
Rp/R\* = 0.0320 [0.0681]  
a/R\* = 486.80 [3562.09]  
b = 0.15 [47.12]  
Seff = 4.19 [2.51]  
Teq = 365 [55] K  
Rp = 10.40 [22.87] Re  
a = 1.0683 [0.4627] AU  
Ag = 3903.26 [16850.89] [0.23] $\sigma$   
Teffp = 4459 [4770] K [0.86] $\sigma$

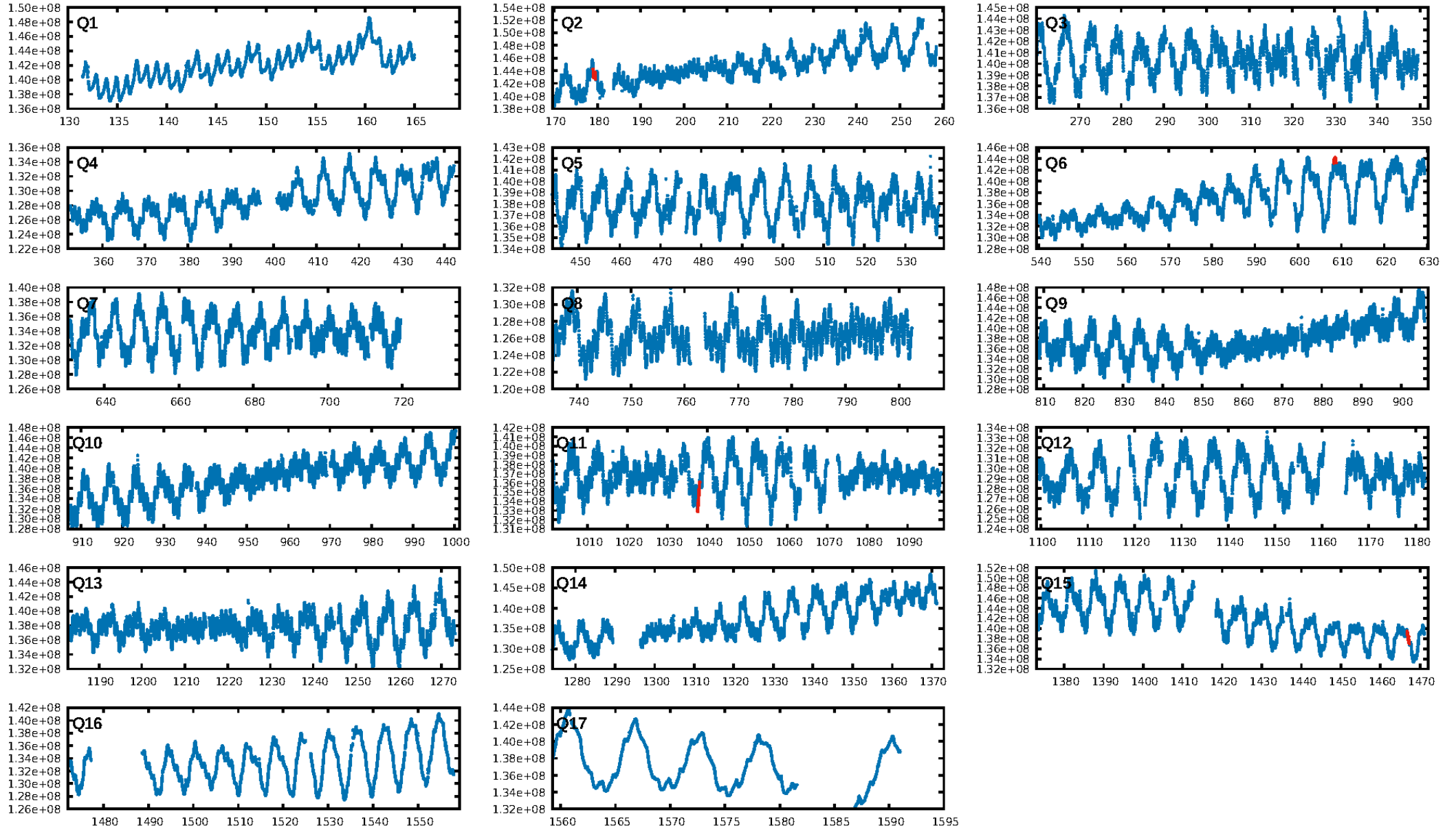
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [275.48 $\sigma$ ]  
LongPeriod-sig: N/A  
ModelChiSquare2-sig: 75.2%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [4/4]  
GhostDiagnostic-chr: 1.063  
Centroid-sig: 20.5%  
Centroid-so: 1.723 arcsec [1.41 $\sigma$ ]  
**OotOffset-rm: 2.439 arcsec [5.45 $\sigma$ ]**  
**KicOffset-rm: 0.290 arcsec [3.69 $\sigma$ ]**  
OotOffset-st: 2/2/0/0 [4]  
KicOffset-st: 2/2/0/0 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 0.00 [0/4]

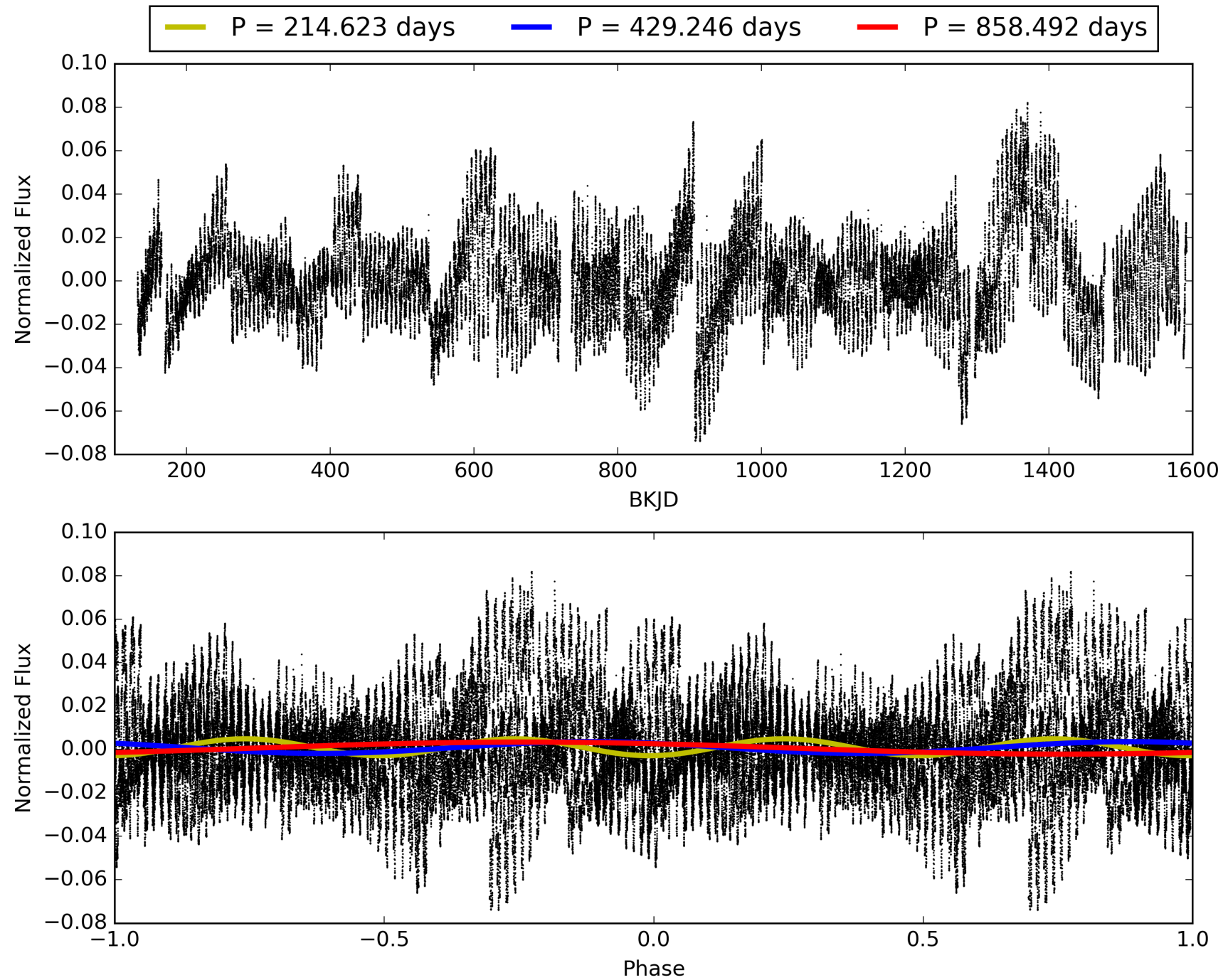
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:14:41 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011036972-02, PDC Light Curves



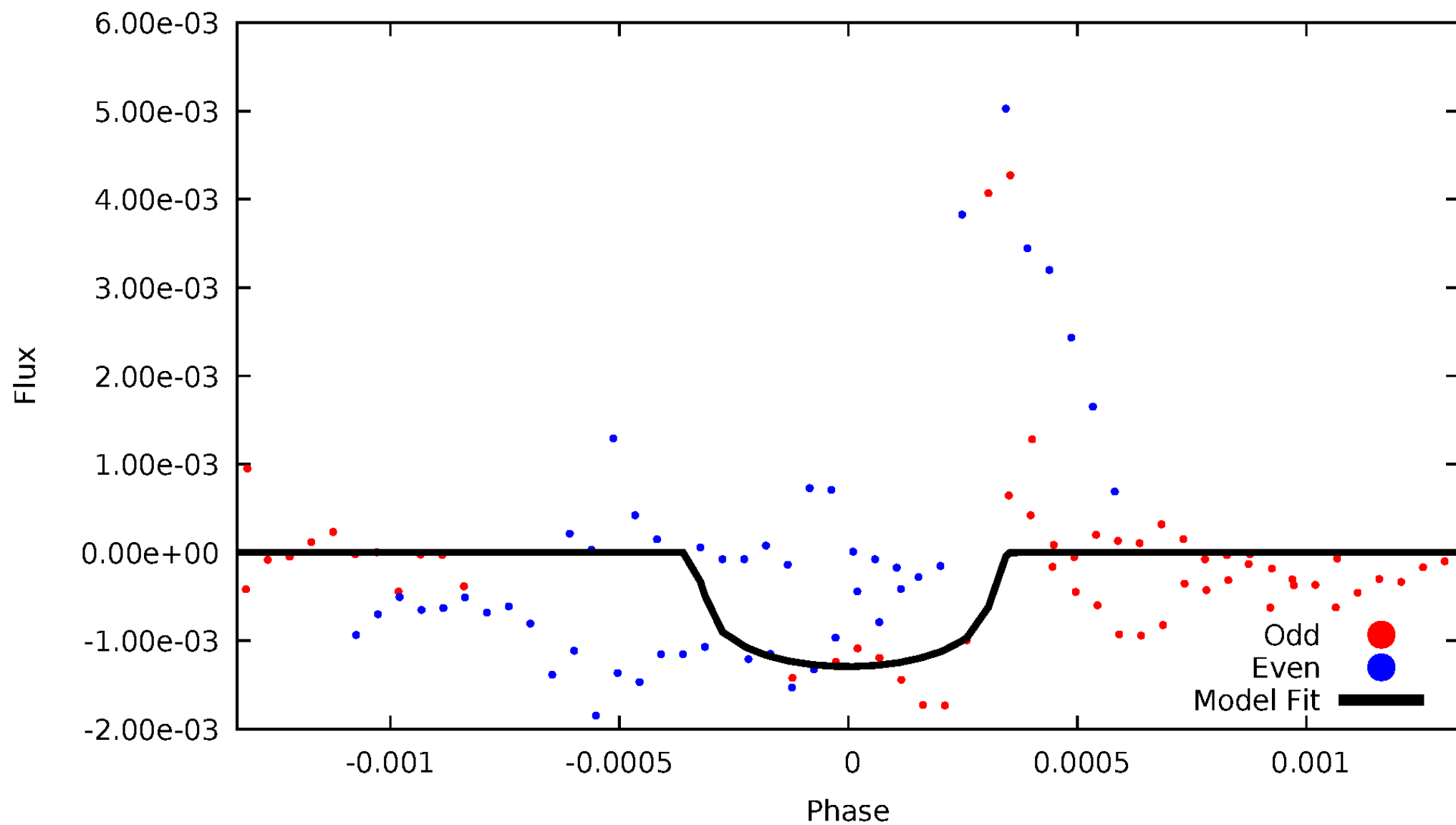
# TCE 011036972-02





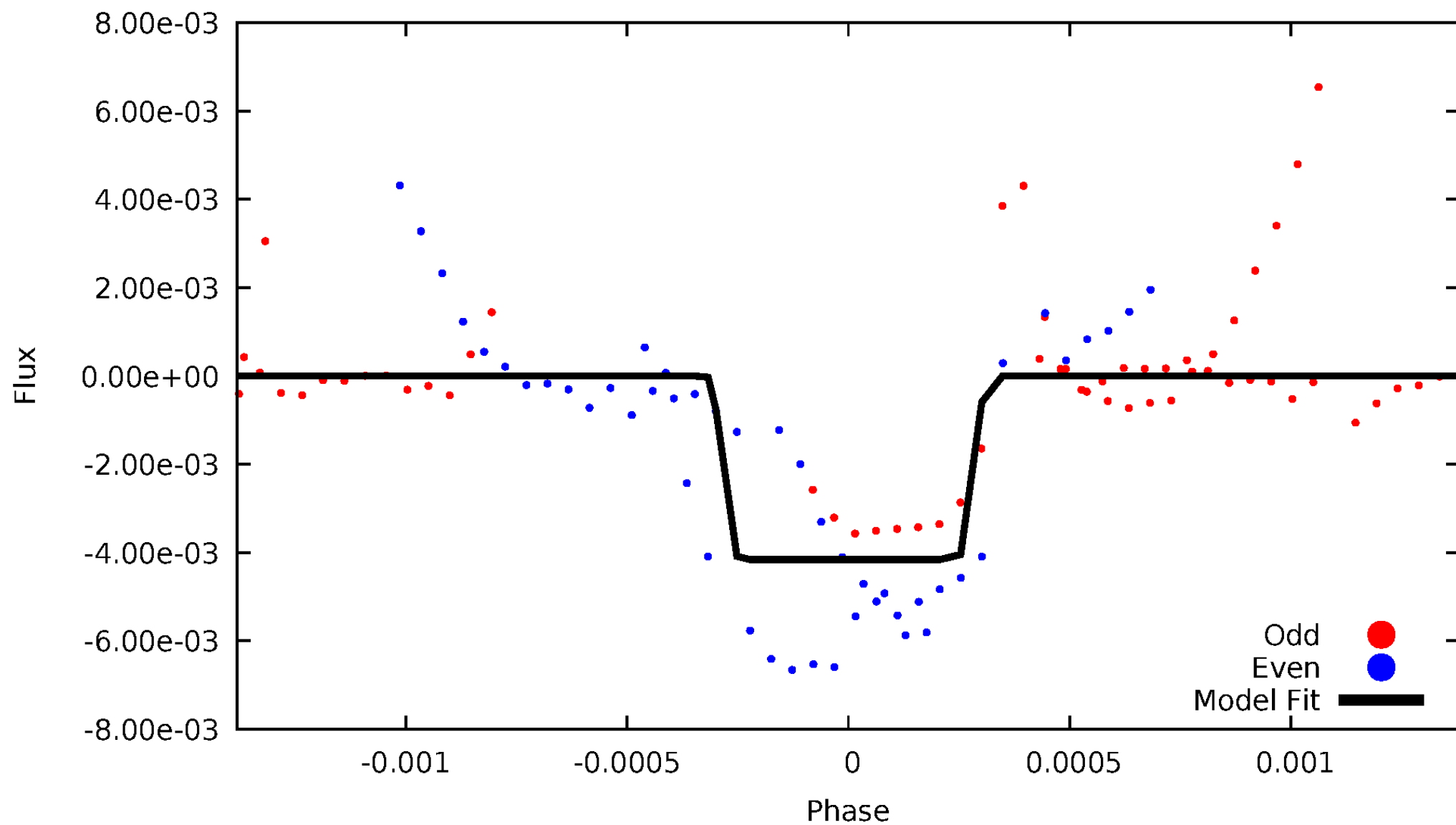
# DV Odd/Even

TCE 011036972-02



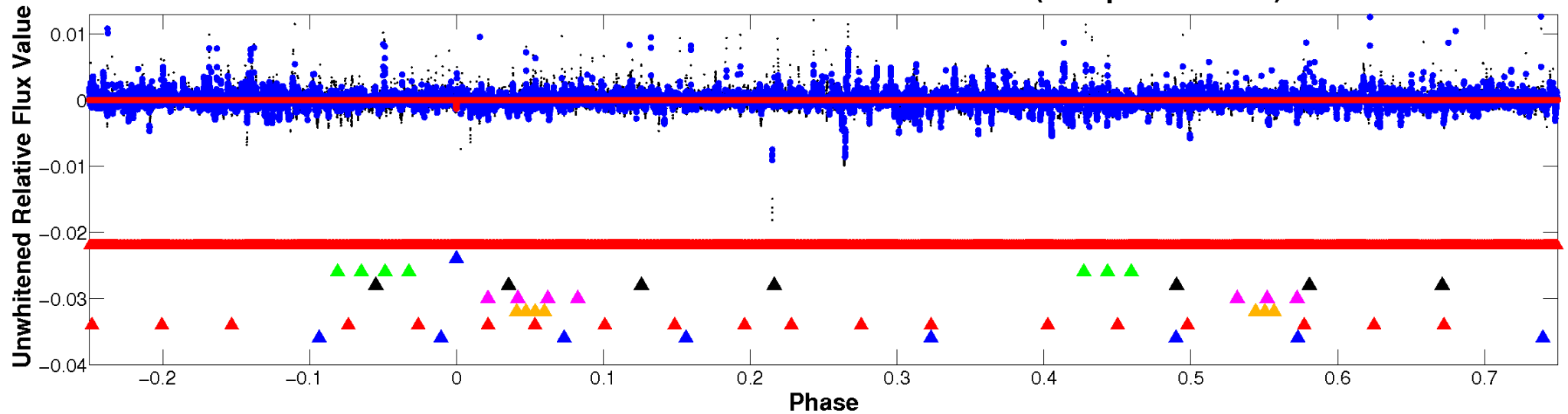
# ALT Odd/Even

TCE 011036972-02

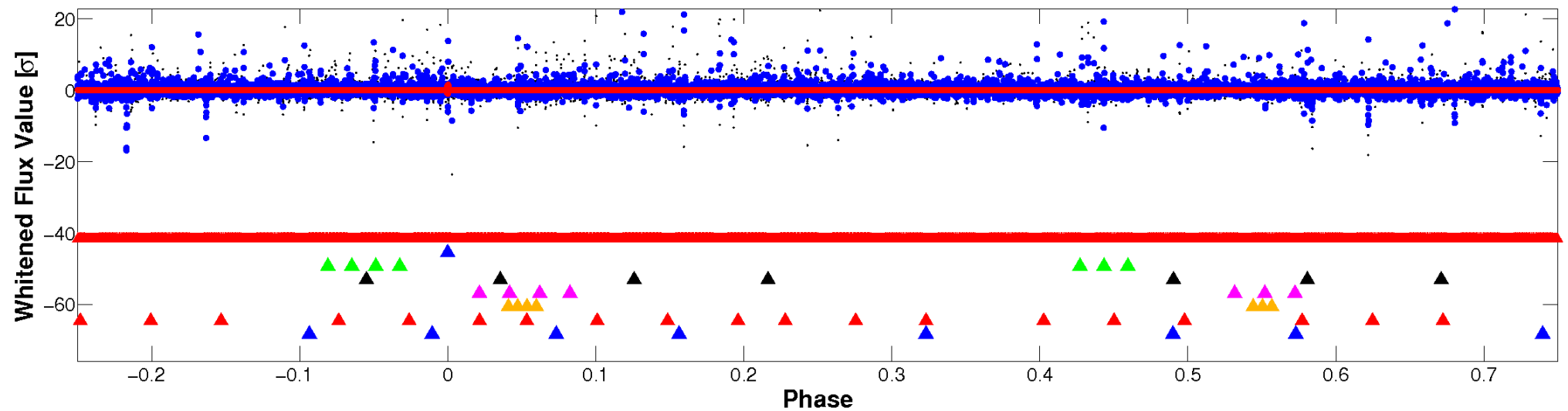


# Non-Whitened Vs. Whitened Light Curve

## Planet 2 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

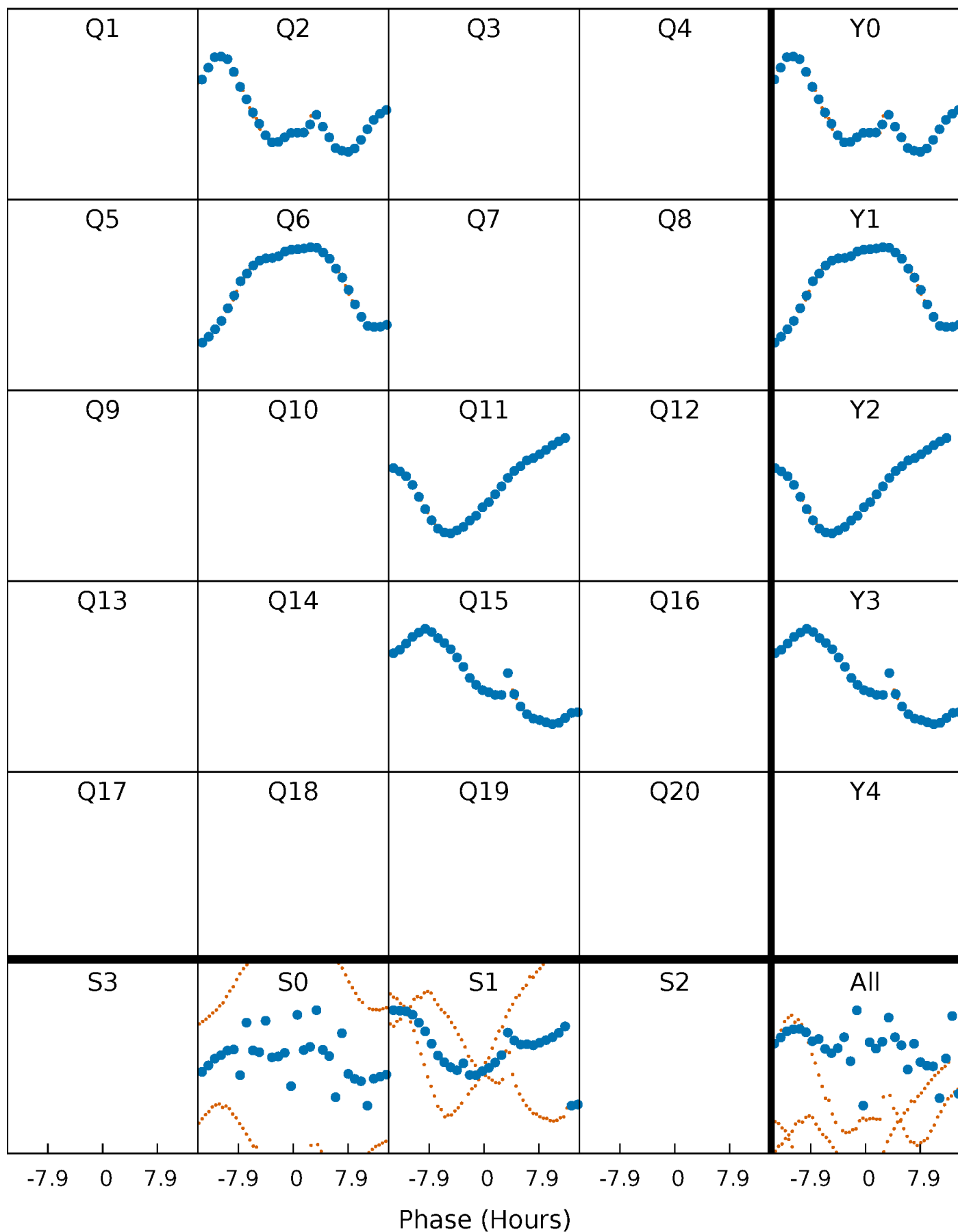


## Planet 2 : Phased Whitened Flux Time Series (Fit Epoch/Period)



# PDC Quarter-Phased Transit Curves

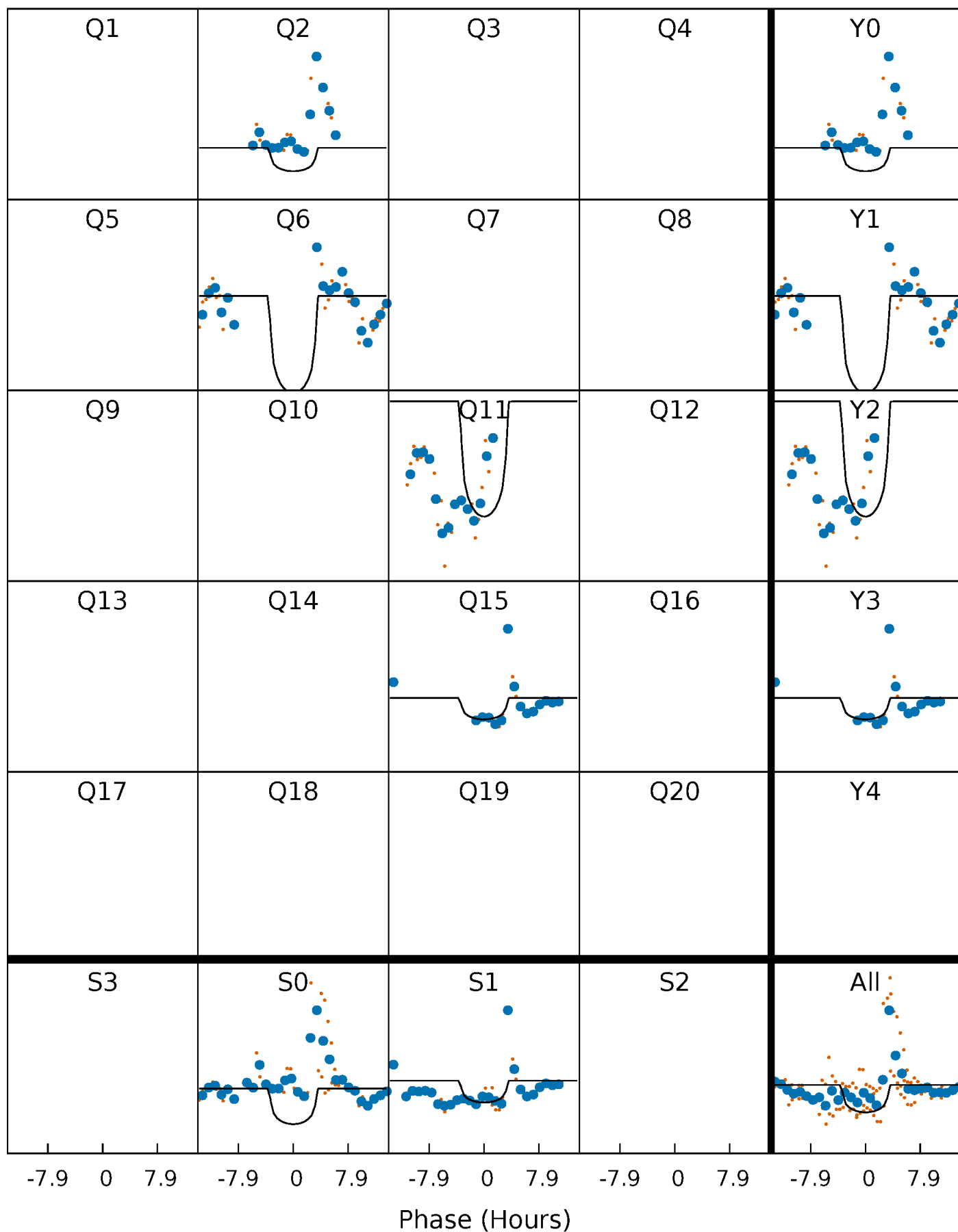
TCE 011036972-02 P=429.246246 Days  $T_0=179.262160$  (BKJD)





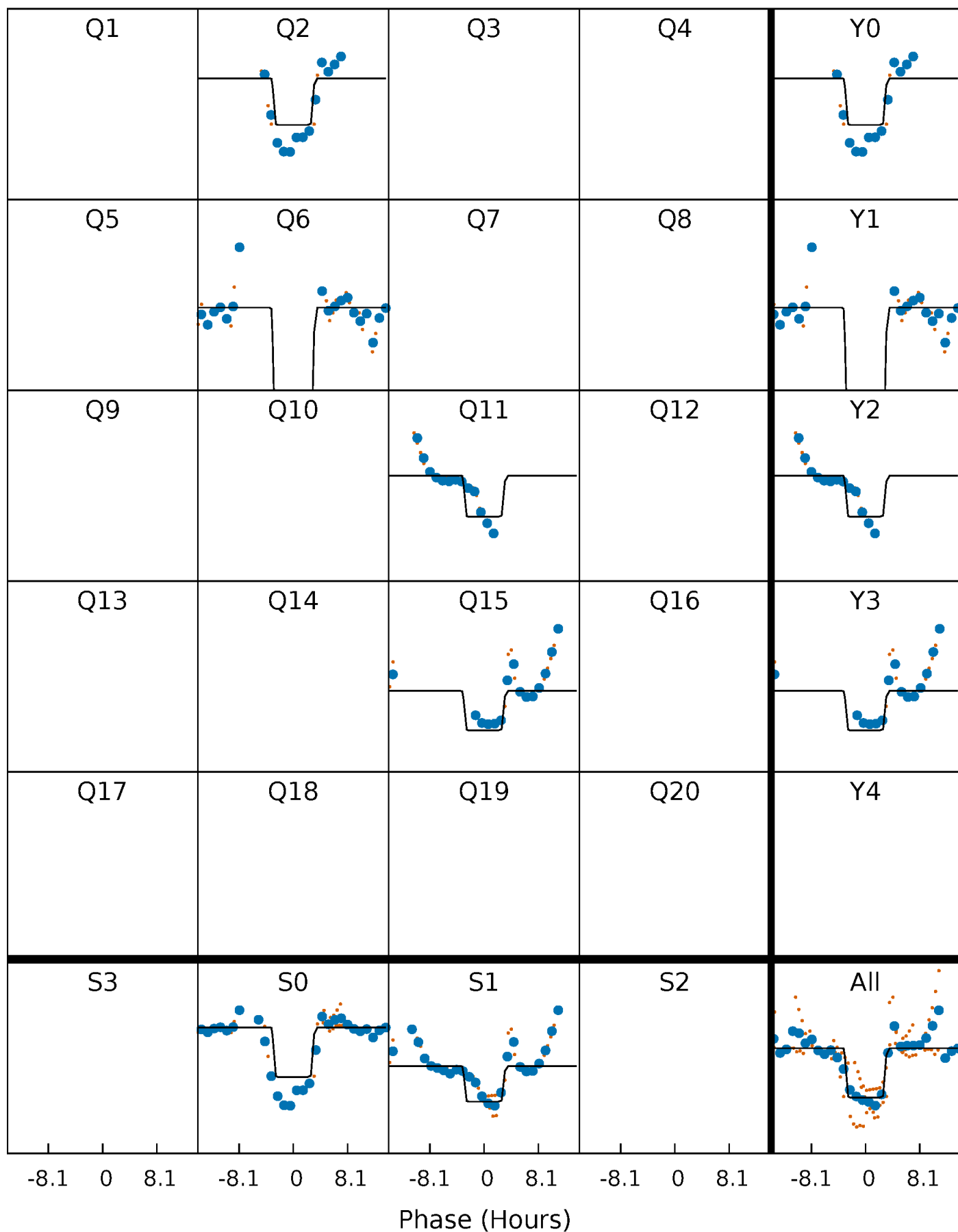
# DV Quarter-Phased Transit Curves

TCE 011036972-02 P=429.246246 Days  $T_0=179.262160$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

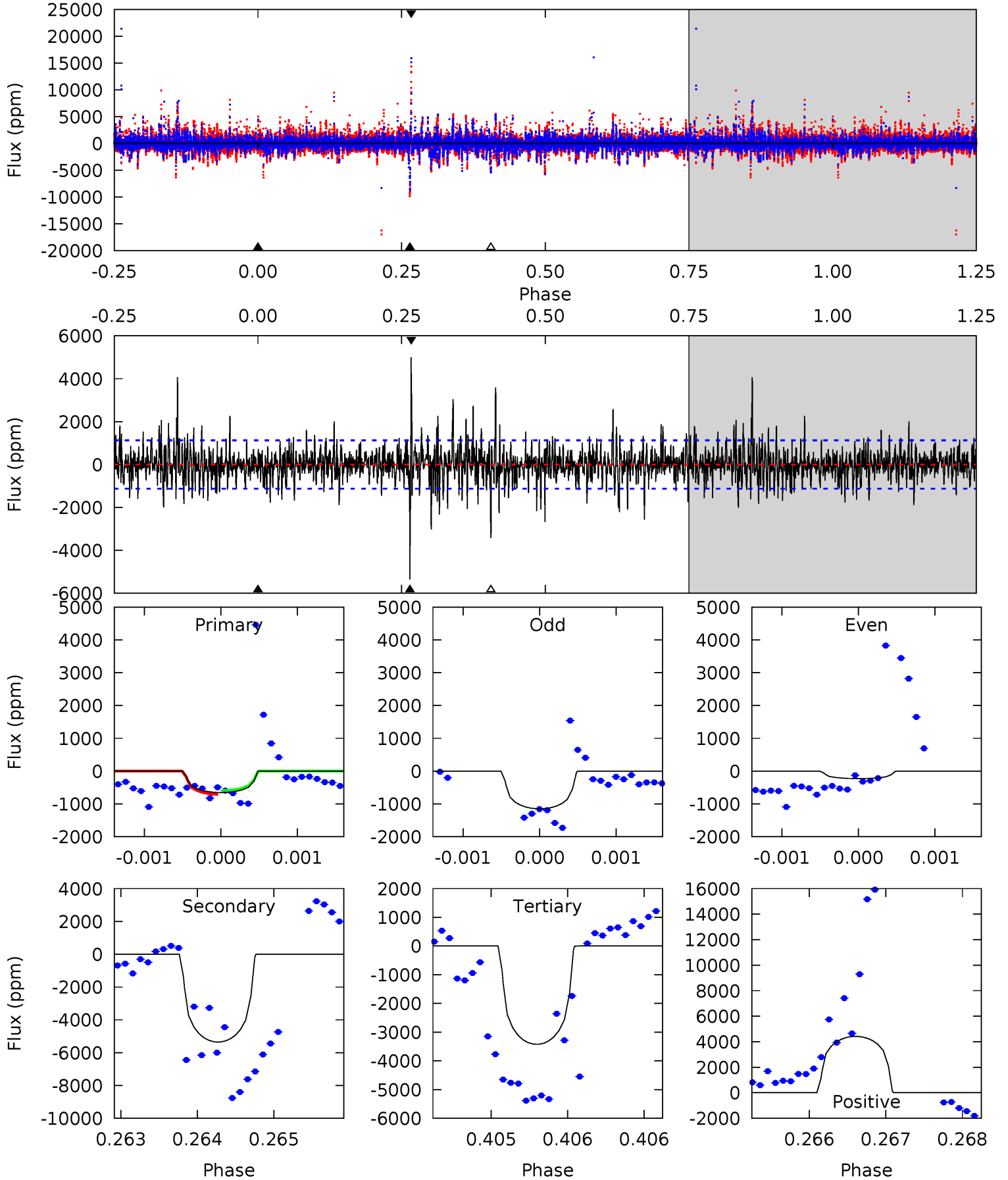
TCE 011036972-02 P=429.254606 Days  $T_0=179.218913$  (BKJD)



# DV Model-Shift Uniqueness Test

011036972-02, P = 429.246246 Days, E = 179.262160 Days

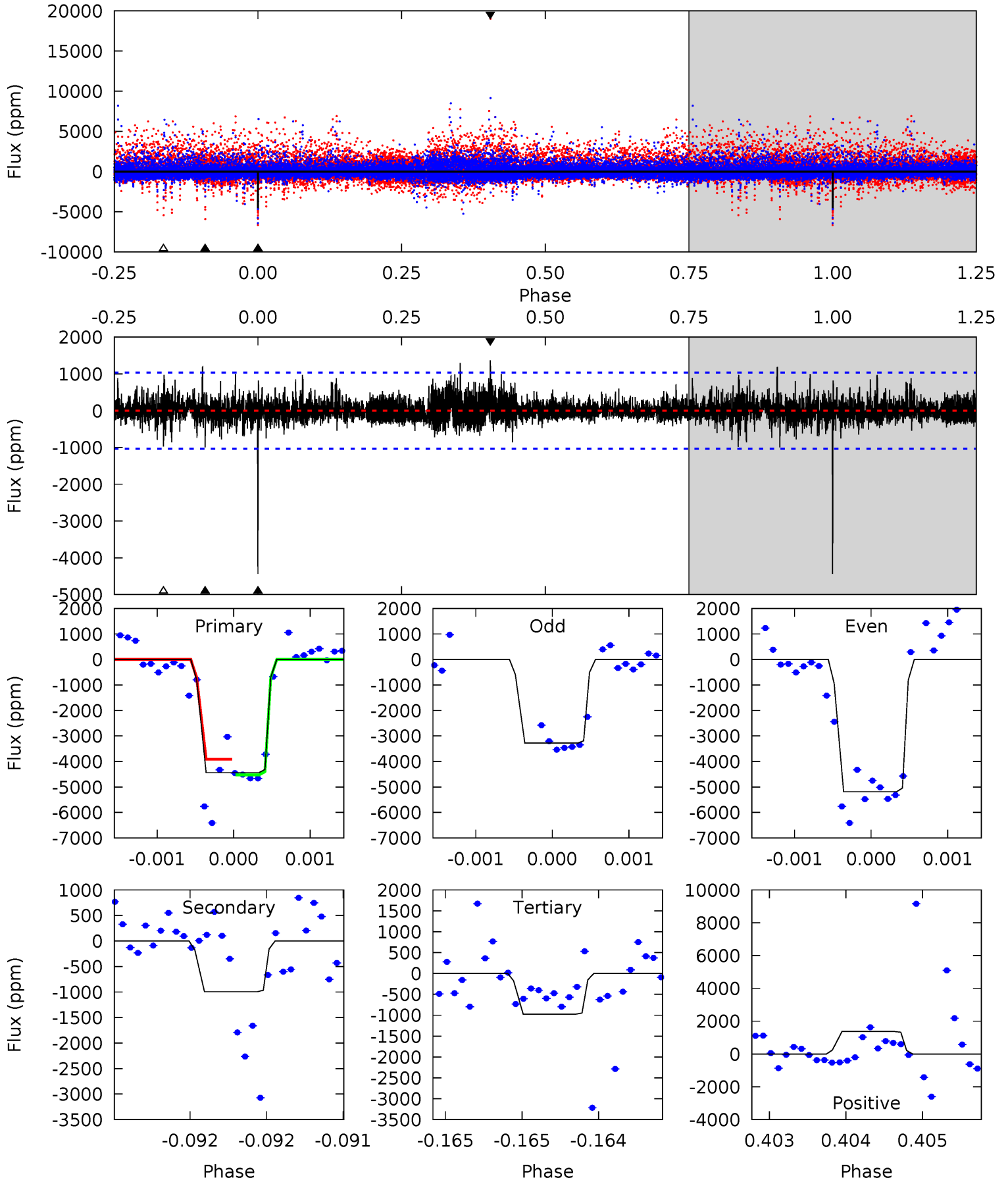
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
3.20	26.2	16.8	21.6	5.51	3.38	3.12	-13.6	-18.4	9.45	4.57	2.07	0.58	0.48	0.29



# Alt Model-Shift Uniqueness Test

011036972-02, P = 429.254606 Days, E = 179.218913 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
23.7	5.31	5.20	7.28	5.54	3.42	1.28	18.5	16.4	0.11	-1.98	4.15	1.15	0.24	1.56





### Stellar Parameters For KIC 011036972

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4955^{+137}_{-1}$	$3.436^{+0.300}_{-0.300}$	$-0.280^{+0.300}_{-0.200}$	$2.977^{+1.638}_{-0.882}$	$0.882^{+0.290}_{-0.134}$	$0.047^{+0.088}_{-0.030}$
	+3%/-0%	+9%/-9%	+107%/-71%	+55%/-30%	+33%/-15%	+186%/-64%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 011036972-02 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-5352 \pm 204$	$19.47^{+18.15}_{-13.45}$	$505^{+60}_{-47}$	$5381^{+5289}_{-1230}$	$8955^{+83913}_{-6519}$
Alt.	$-995 \pm 187$	$25.17^{+22.45}_{-15.85}$	$504^{+60}_{-50}$	$3551^{+1544}_{-570}$	$1032^{+6185}_{-743}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

## DV Centroid Data

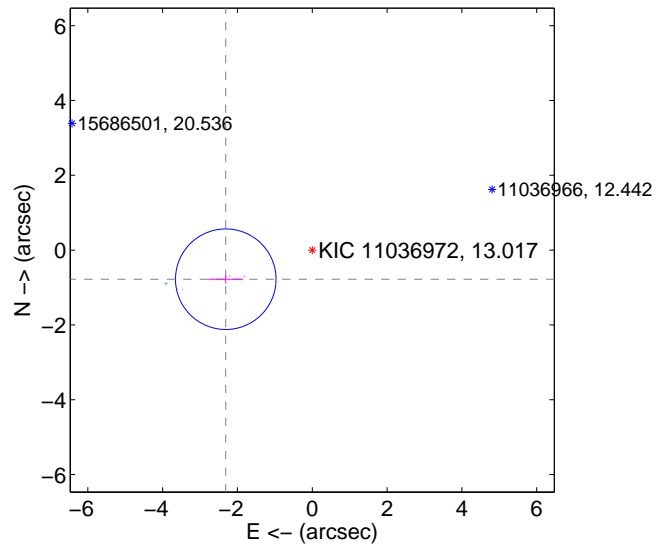
Supplemental centroid analysis for 011036972-02. Kepler magnitude: 13.02. Transit SNR 4.28

There are 3 quarters with good PRF difference image offsets

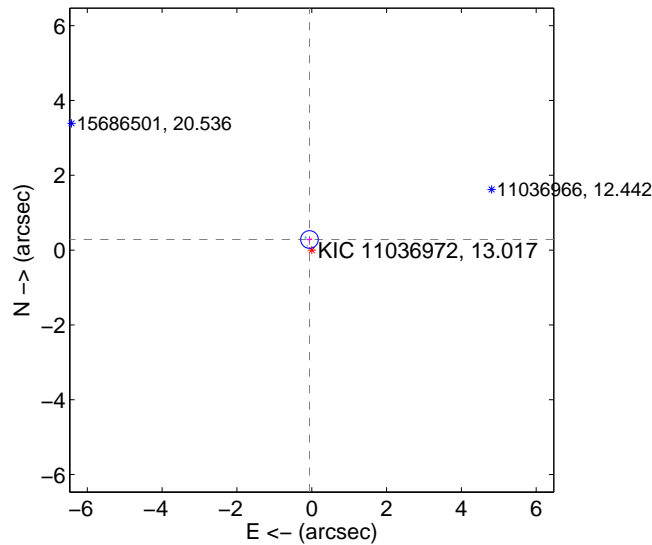
The OOT PRF centroid is offset from the target star catalog position by about 3.94 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	2.439 $\pm$ 0.448	5.45	2.312 $\pm$ 0.471	-0.778 $\pm$ 0.117
PRF-fit source offset from KIC position	0.290 $\pm$ 0.078	3.69	0.060 $\pm$ 0.073	0.284 $\pm$ 0.080
photometric centroid source offset	1.72 $\pm$ 1.22	1.41	-1.58 $\pm$ 1.32	0.70 $\pm$ 0.46

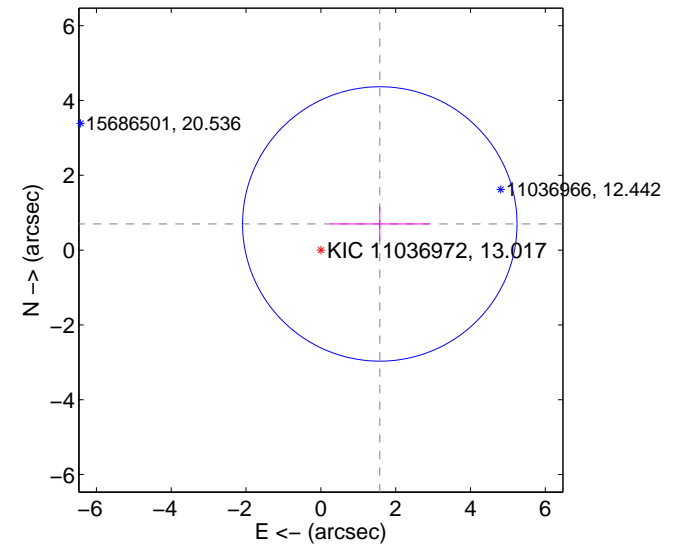
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

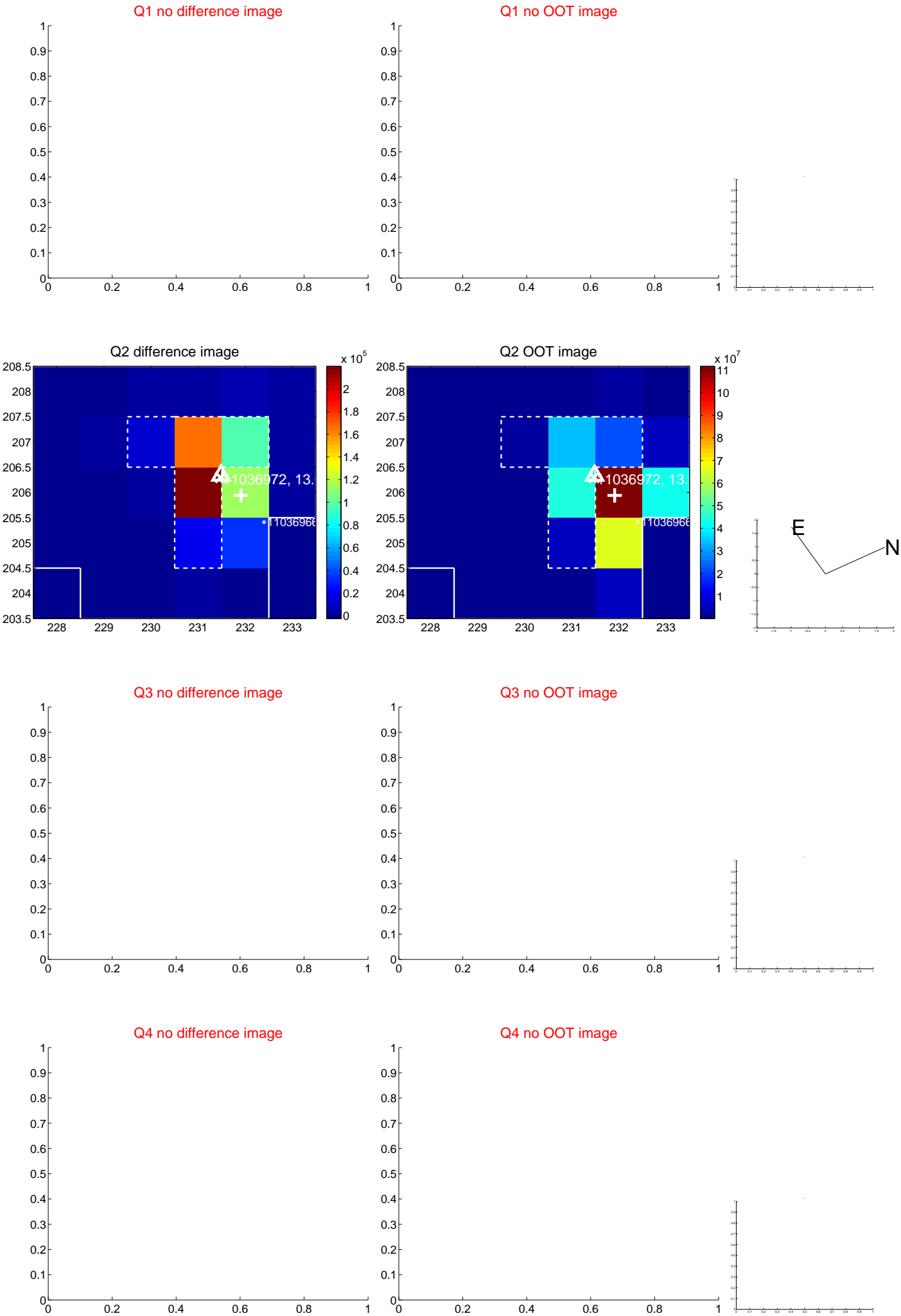


offset from photometric centroids

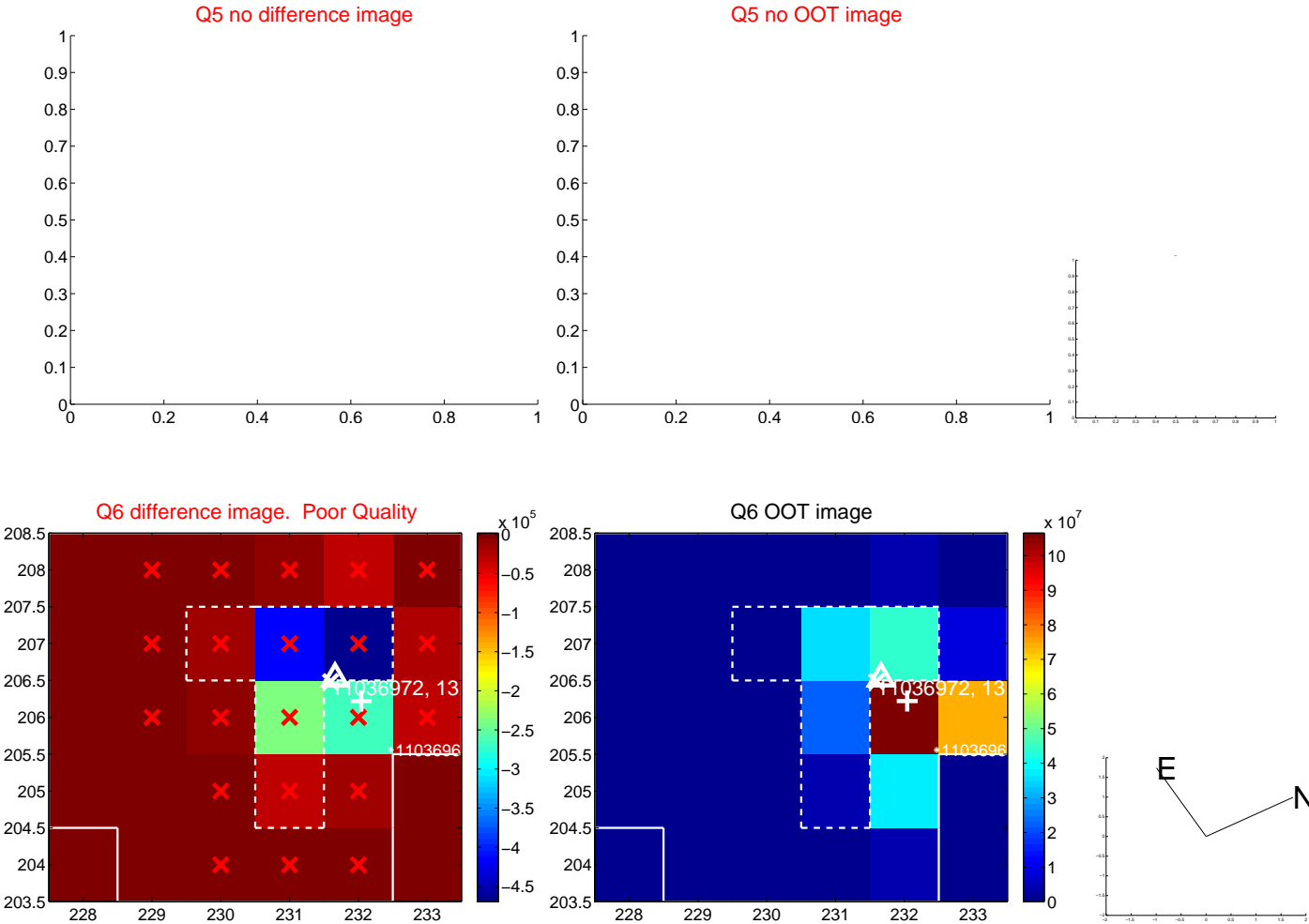


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

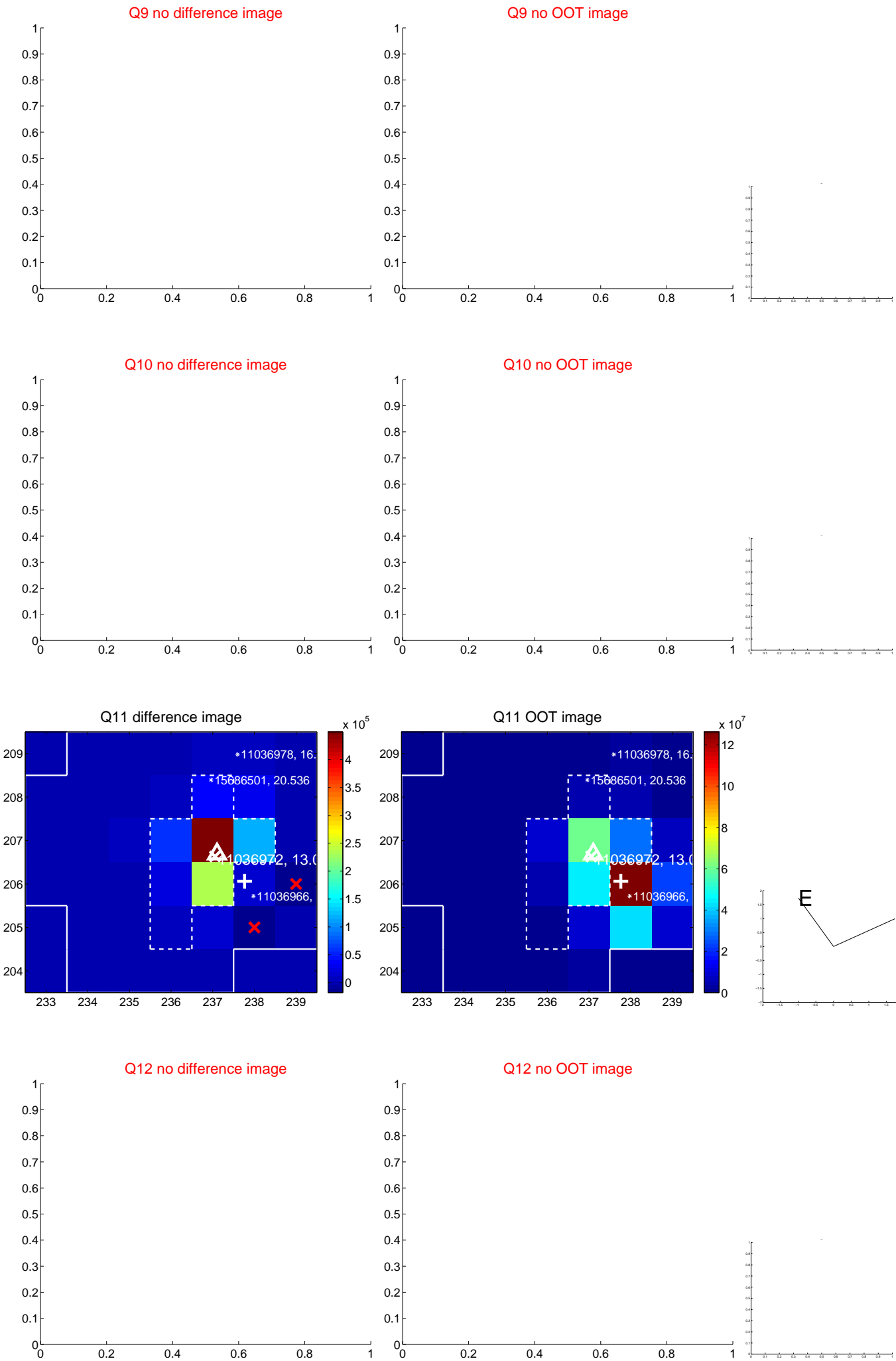
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

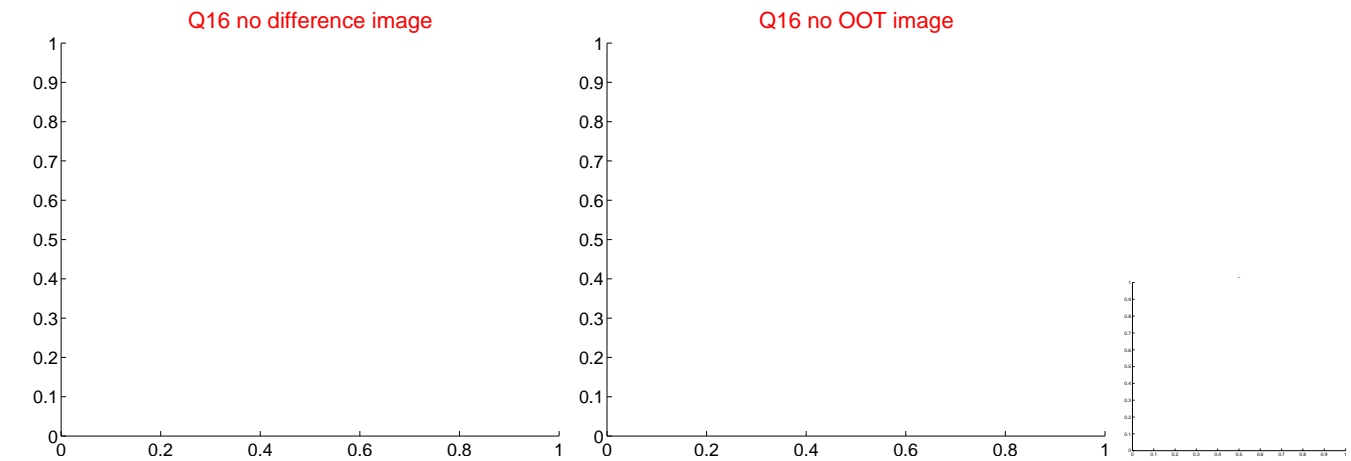
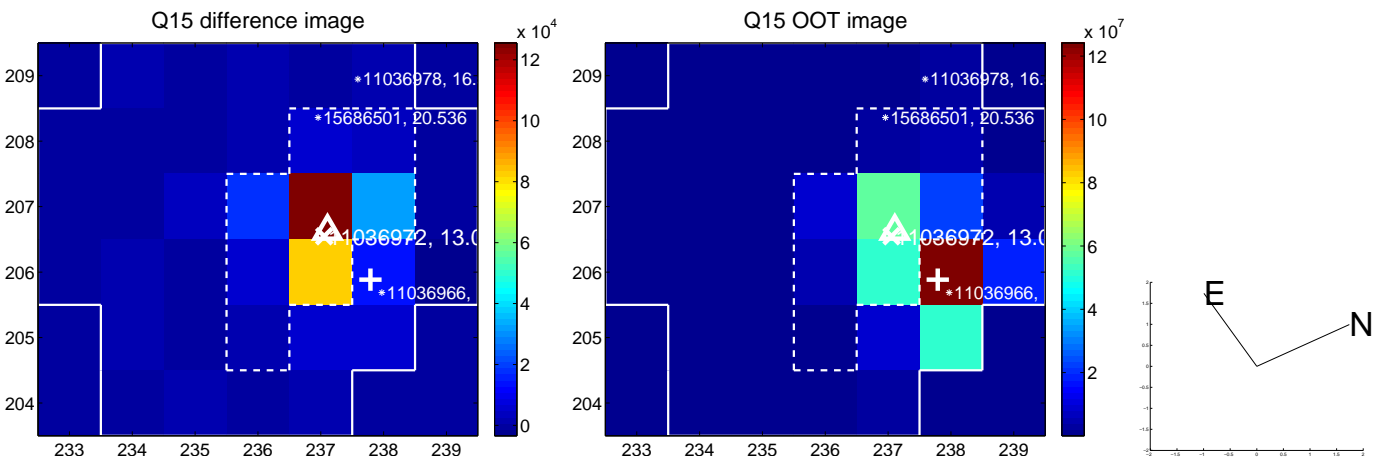
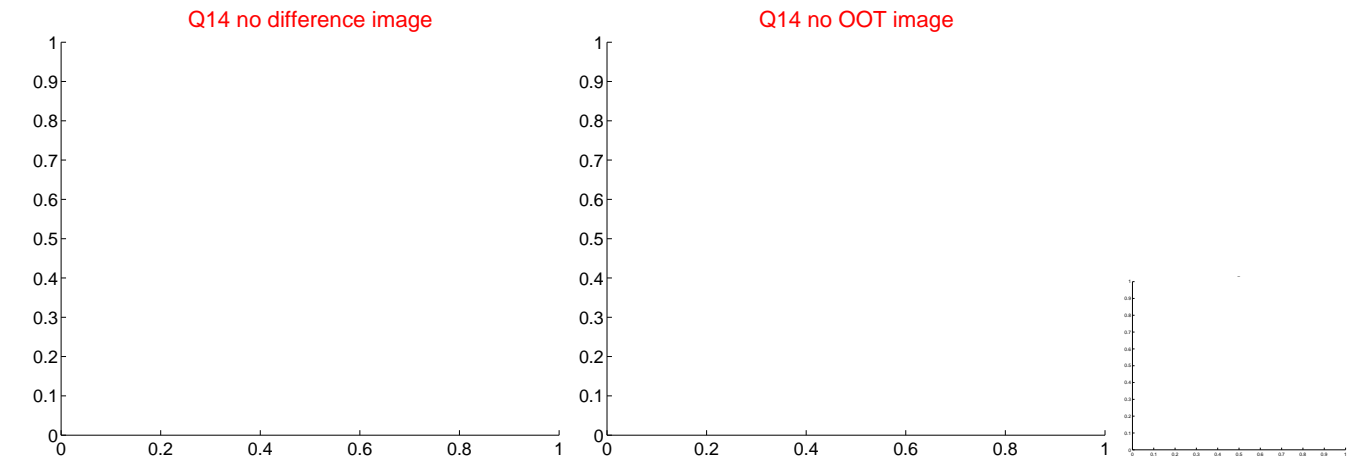
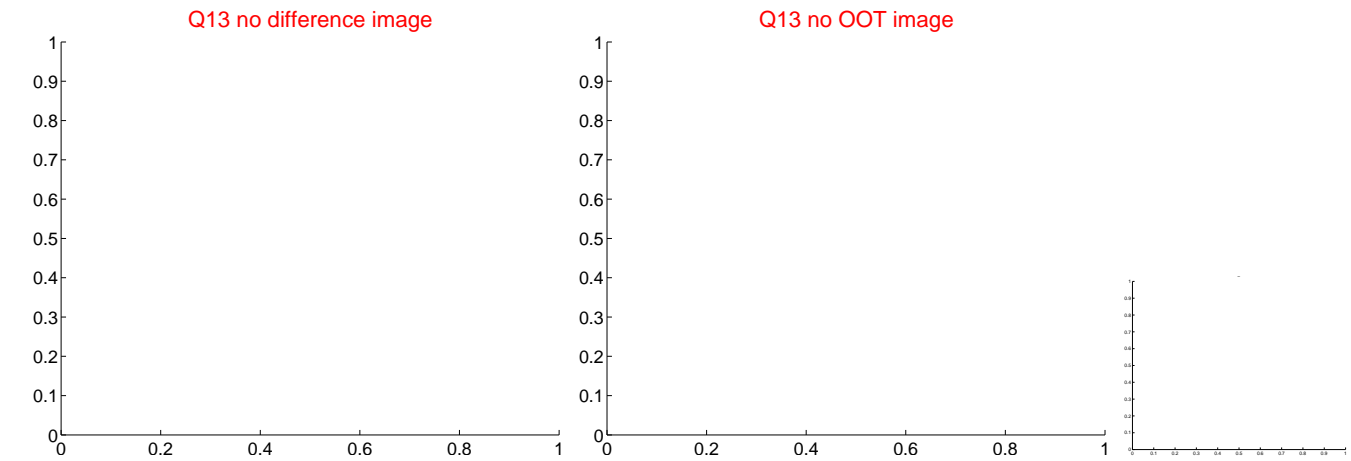


white ×: KIC target position; +: OOT centroid; △: difference centroid. red ×: large negative pixel value.

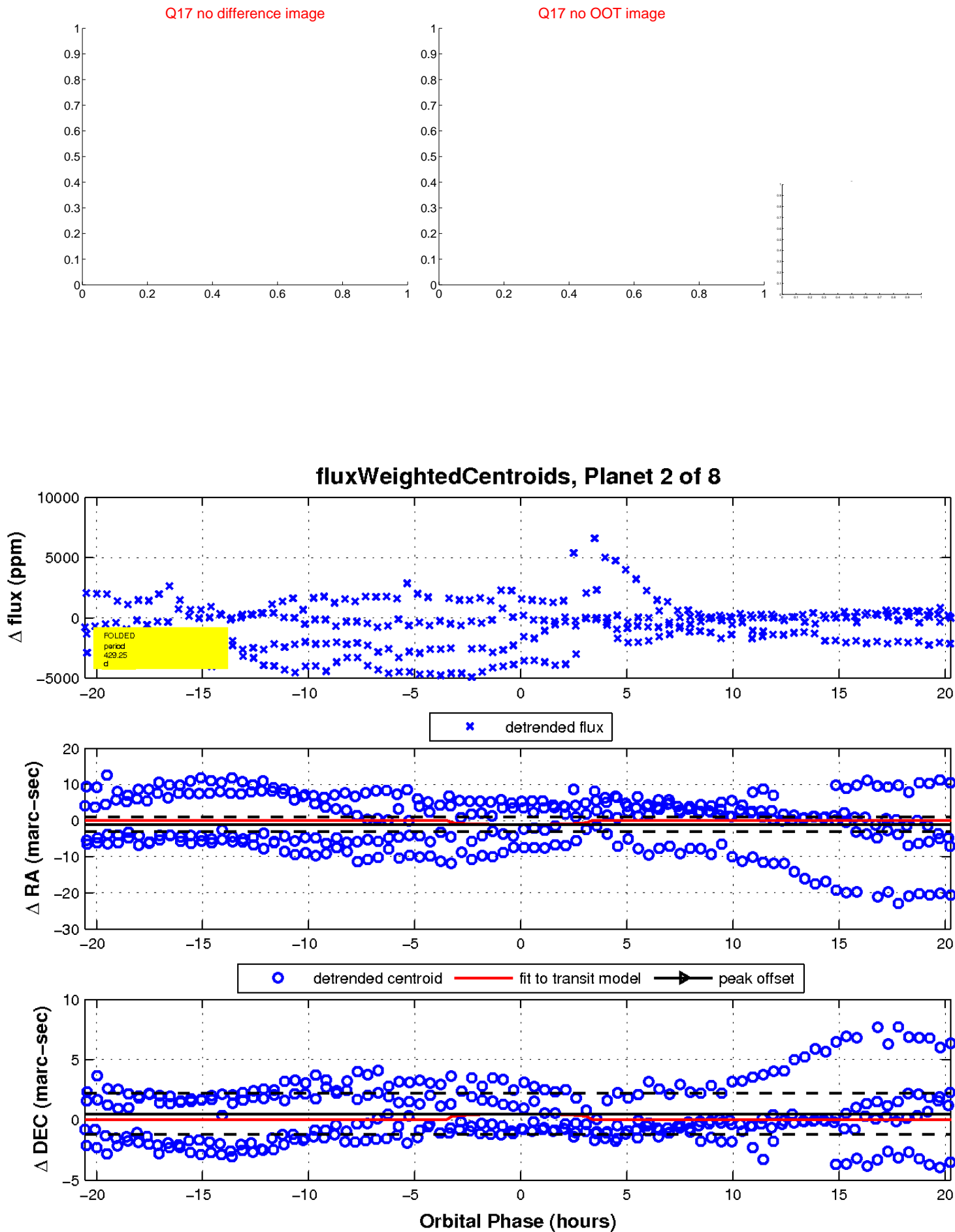




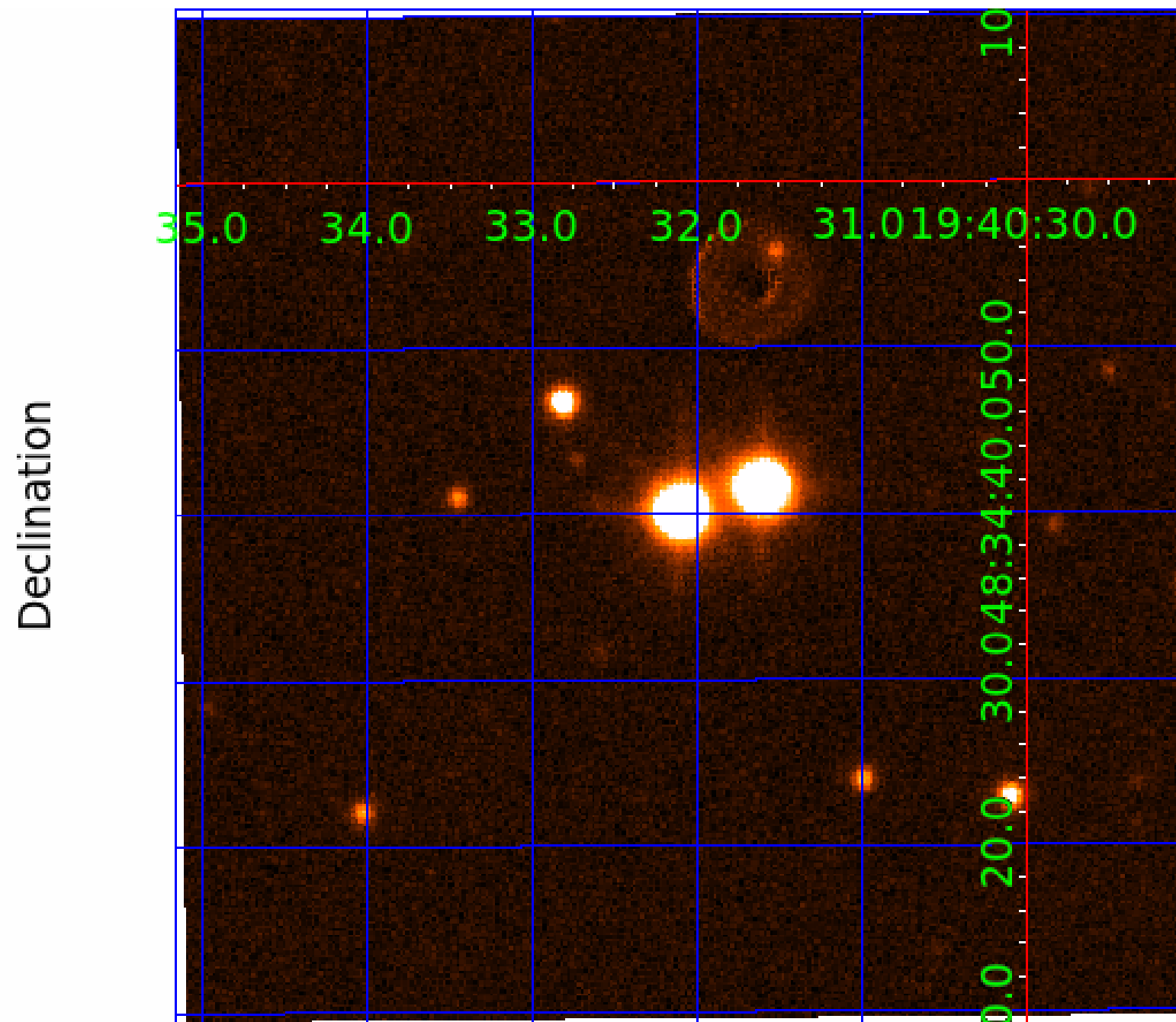
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image



# KIC 011036972

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011036972-01	OBS	No	1.020557	131.809893	71.6	3.740	15.7	7.5	2.98	4955	3.07	13217.17
011036972-02	OBS	No	429.246246	179.262160	1289.7	6.874	14.0	4.3	2.98	4955	10.40	4.19
011036972-03	OBS	No	211.151208	165.355494	7.9	1.293	13.4	0.1	2.98	4955	0.98	10.80
011036972-04	OBS	No	195.212733	272.157520	1557.8	3.014	12.2	7.2	2.98	4955	11.57	11.99
011036972-05	OBS	No	218.996531	188.473447	2128.3	16.978	10.6	5.3	2.98	4955	16.93	10.29
011036972-06	OBS	No	213.271097	204.974825	807.5	4.853	11.3	3.9	2.98	4955	8.26	10.66
011036972-07	OBS	No	74.943778	202.204954	1102.9	15.979	9.6	5.8	2.98	4955	9.70	42.98
011036972-08	OBS	No	178.823053	210.737521	1175.6	5.577	11.6	5.7	2.98	4955	10.79	13.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011036972-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
011036972-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
011036972-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
011036972-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
011036972-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS—HALO_GHOST
011036972-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
011036972-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS—HALO_GHOST
011036972-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

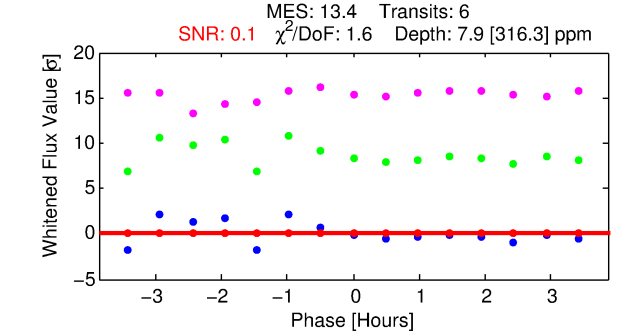
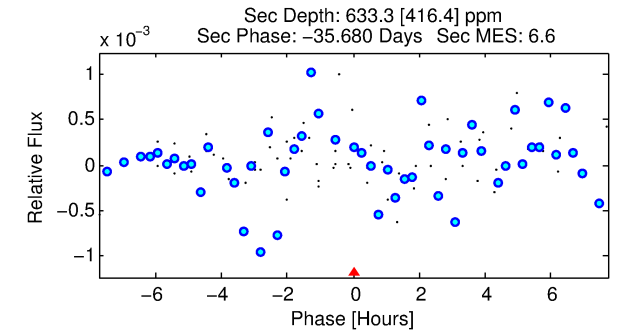
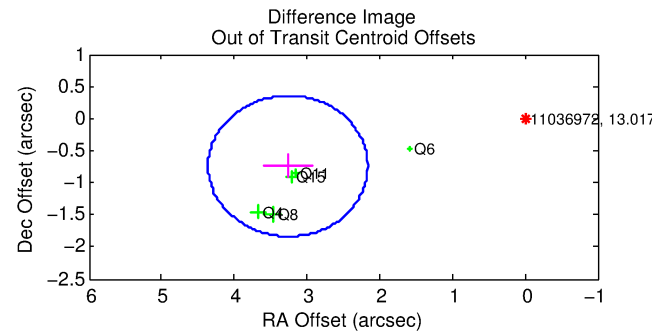
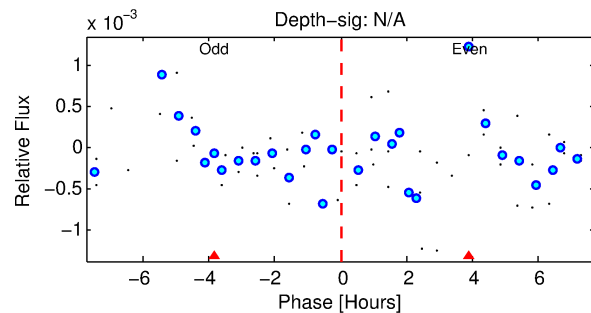
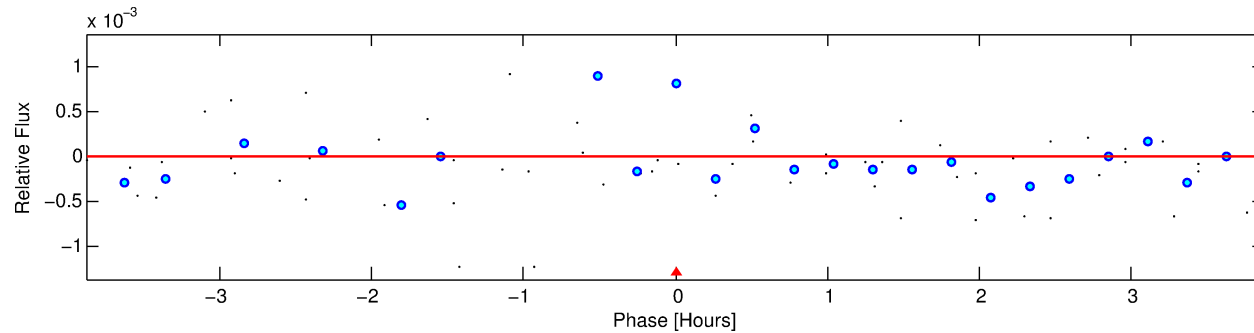
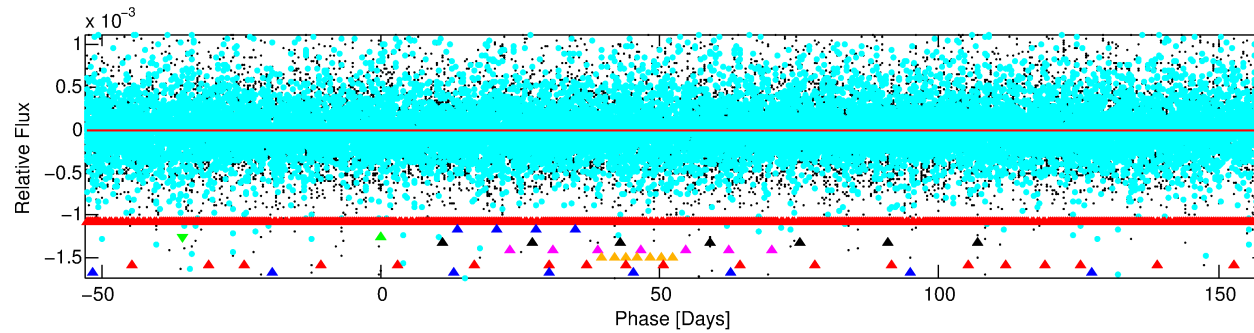
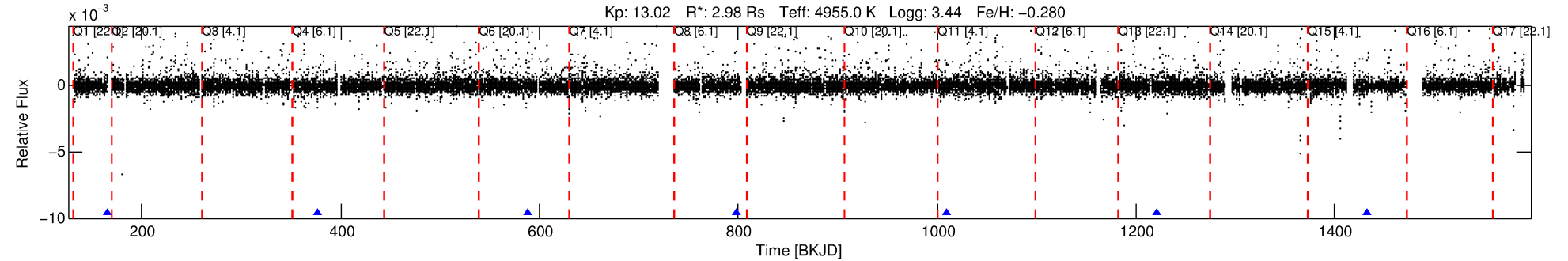
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011036972-03

No Significant Match Found

# DV One-Page Summary

KIC: 11036972 Candidate: 3 of 8 Period: 211.151 d



## DV Fit Results:

Period = 211.15121 [0.53667] d  
Epoch = 165.3555 [1.5293] BKJD  
Rp/R\* = 0.0030 [0.2037]  
a/R\* = 631.23 [134039.95]  
b = 0.87 [72.34]  
Seff = 10.80 [6.47]  
Teff = 462 [69] K  
Rp = 0.98 [66.18] Re  
a = 0.6657 [0.2883] AU  
Ag = 159269.39 [21409418.94] [0.01]  
Teffp = 14278 [479820] K [0.03]

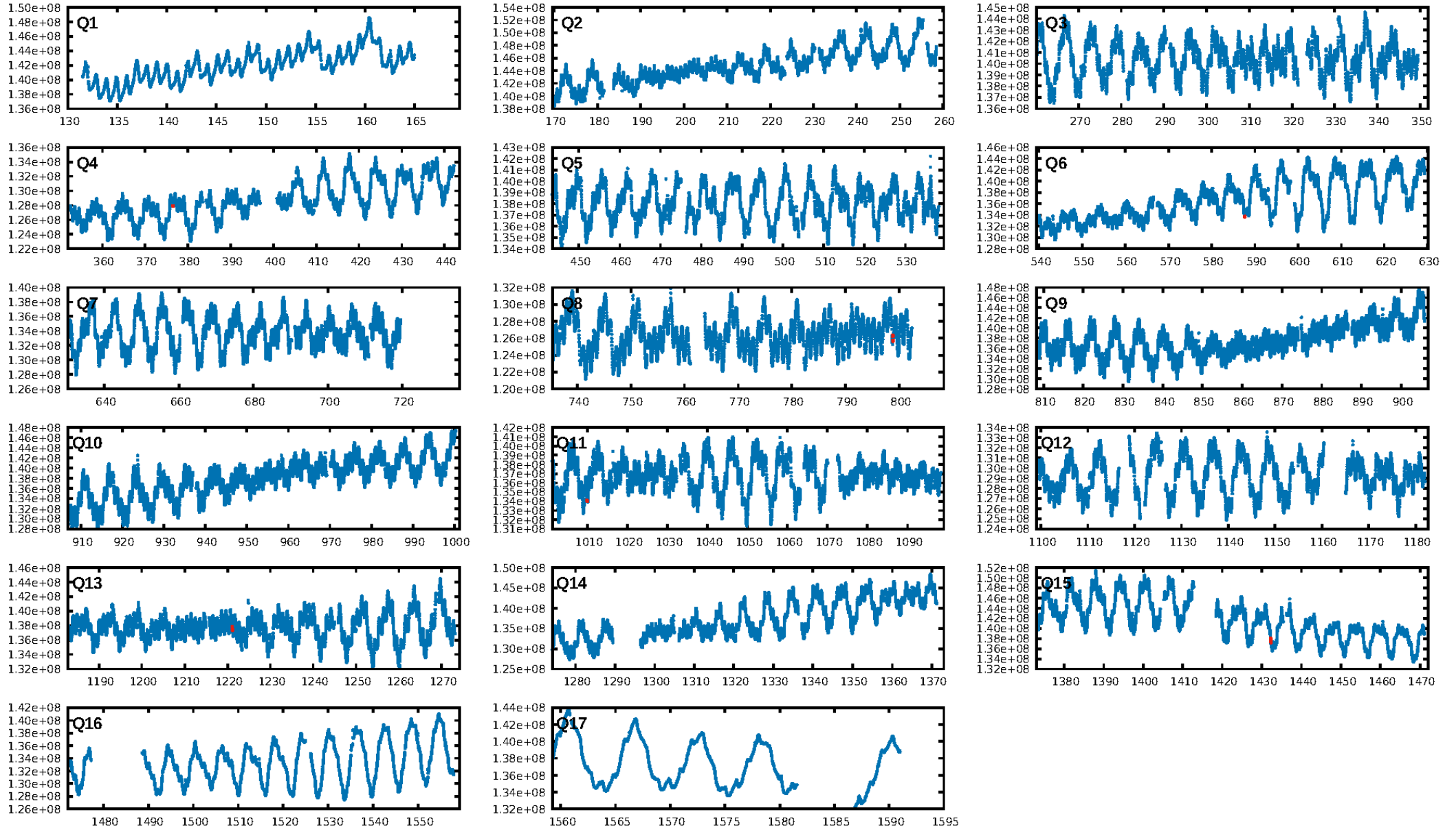
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [116.64]  
LongPeriod-sig: 100.0% [10.13]  
ModelChiSquare2-sig: 97.9%  
ModelChiSquareGof-sig: 99.1%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [6/6]  
GhostDiagnostic-chr: -0.4633  
Centroid-sig: 62.8%  
Centroid-so: 75.275 arcsec [0.44]  
OotOffset-rm: 3.346 arcsec [9.15]  
KicOffset-rm: 0.364 arcsec [4.77]  
OotOffset-st: 1/2/2/0 [5]  
KicOffset-st: 1/2/2/0 [5]  
DiffImageQuality-fgm: 1.00 [5/5]  
DiffImageOverlap-fno: 0.67 [4/6]

Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:14:54 Z

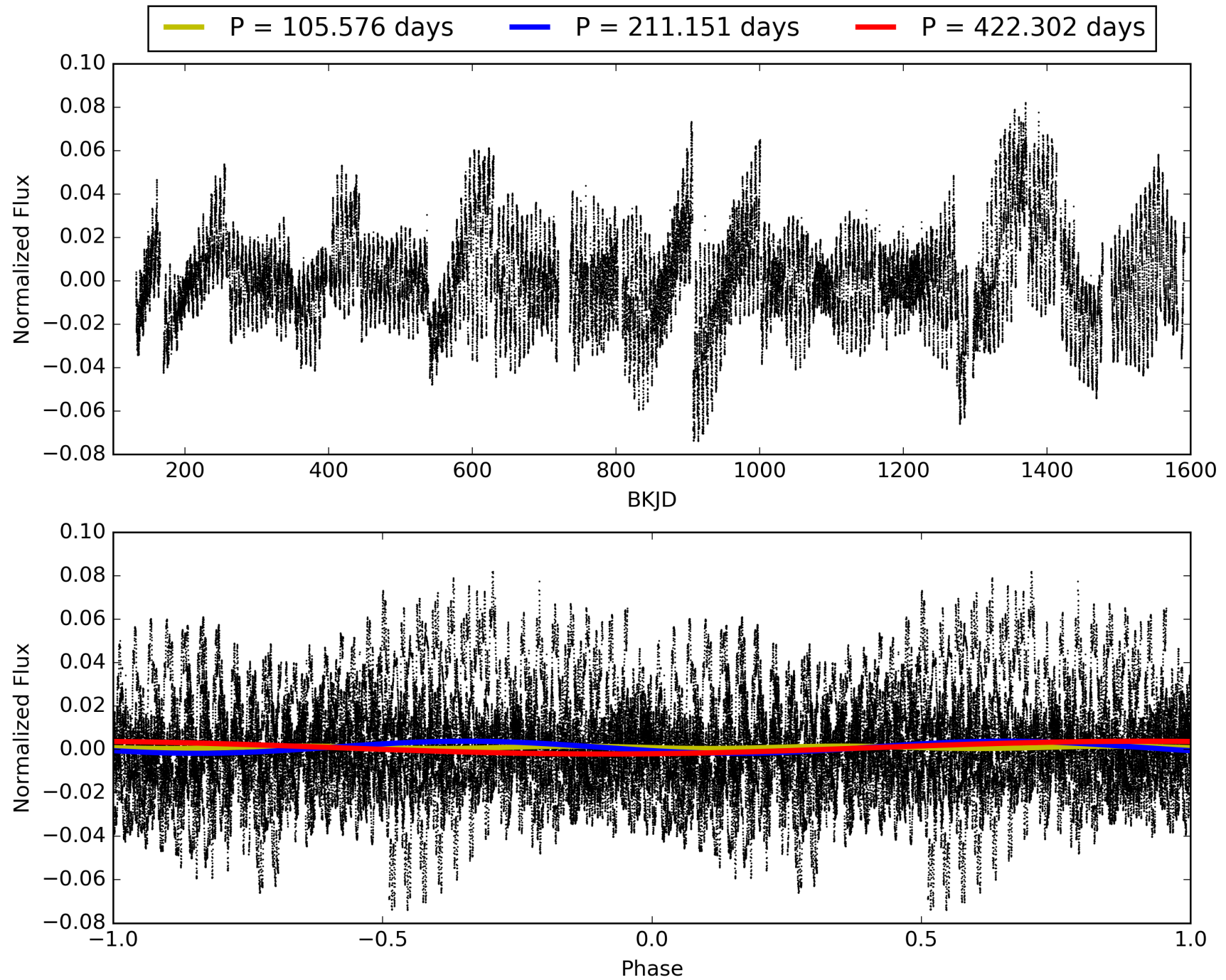
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011036972-03, PDC Light Curves



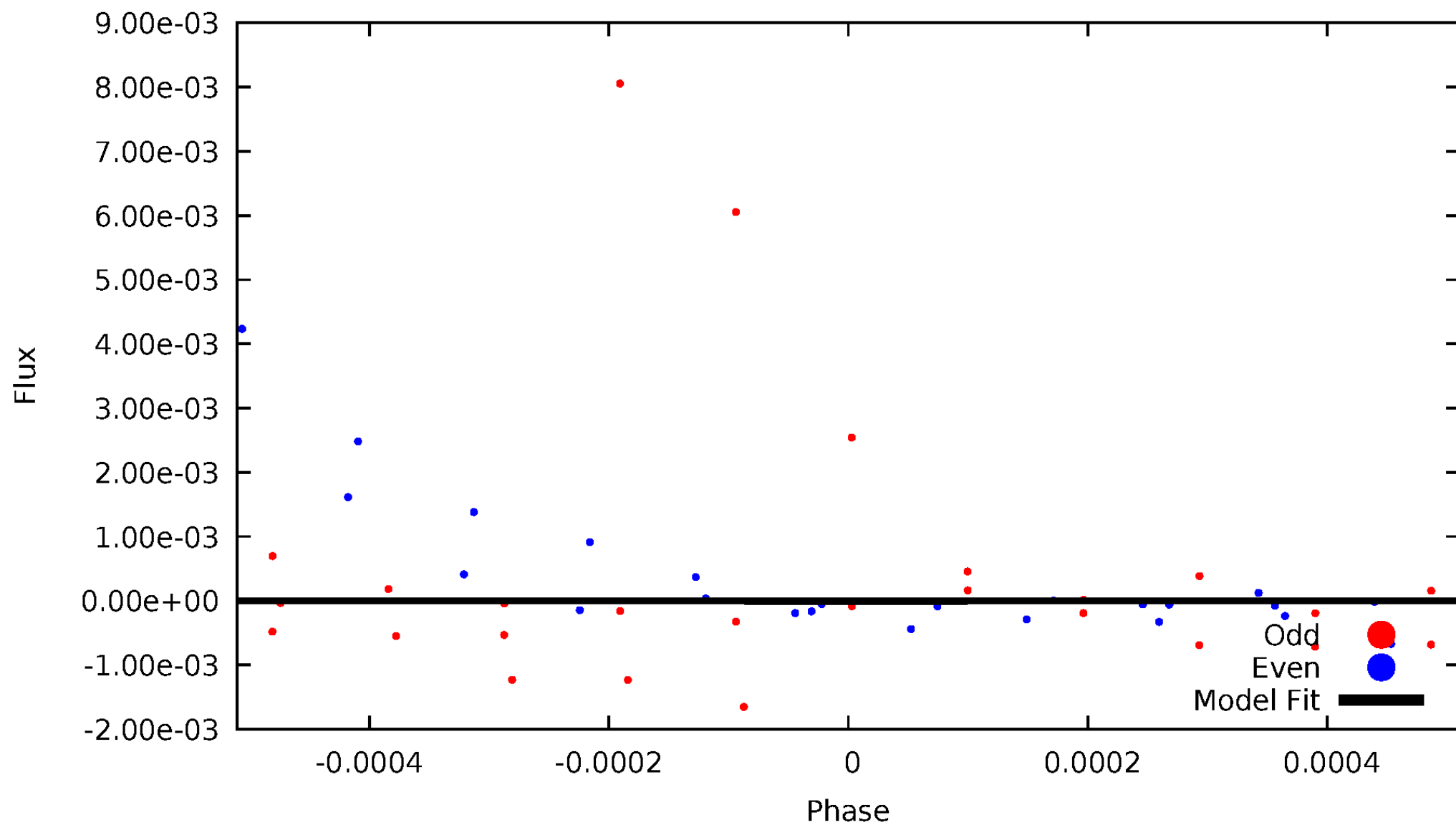


# TCE 011036972-03



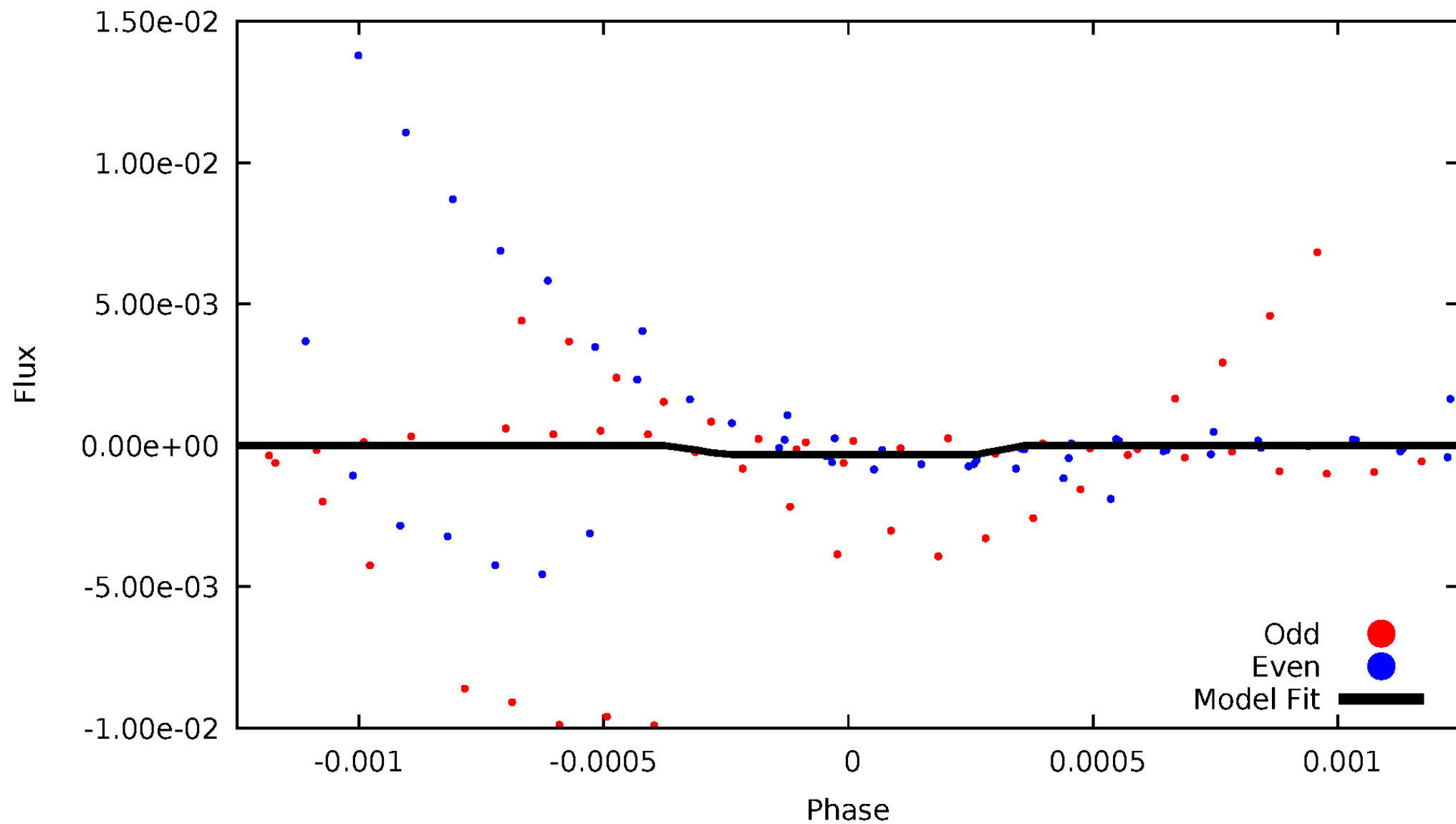
# DV Odd/Even

TCE 011036972-03



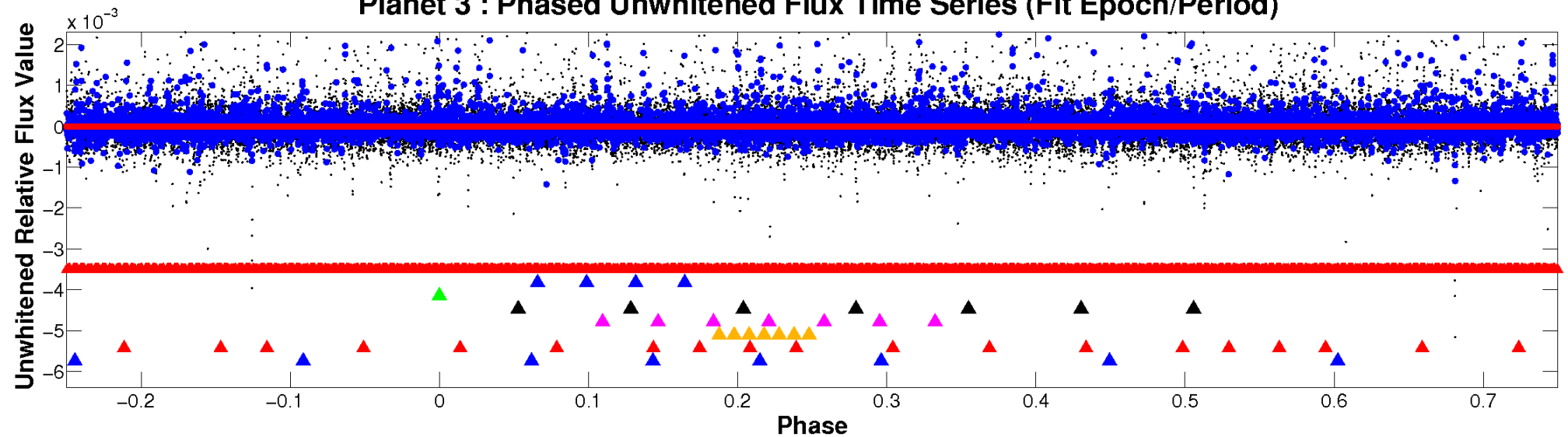
# ALT Odd/Even

TCE 011036972-03

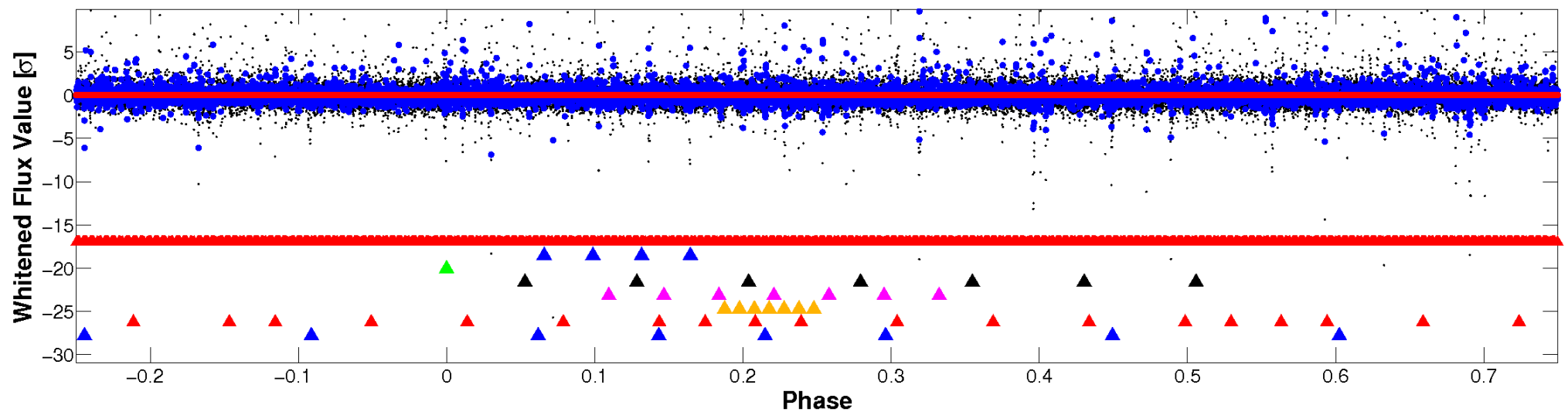


# Non-Whitened Vs. Whitened Light Curve

## Planet 3 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

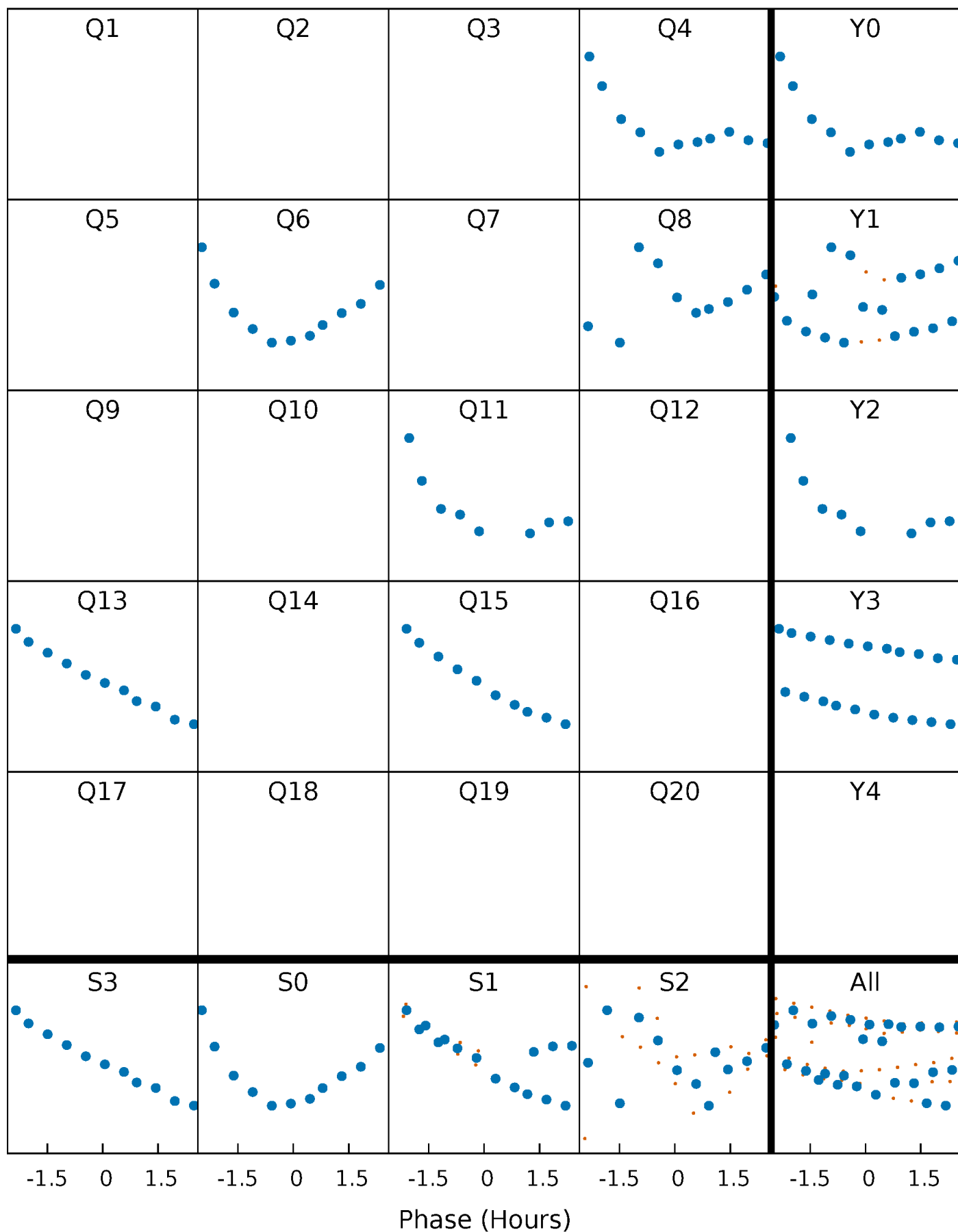


## Planet 3 : Phased Whitened Flux Time Series (Fit Epoch/Period)



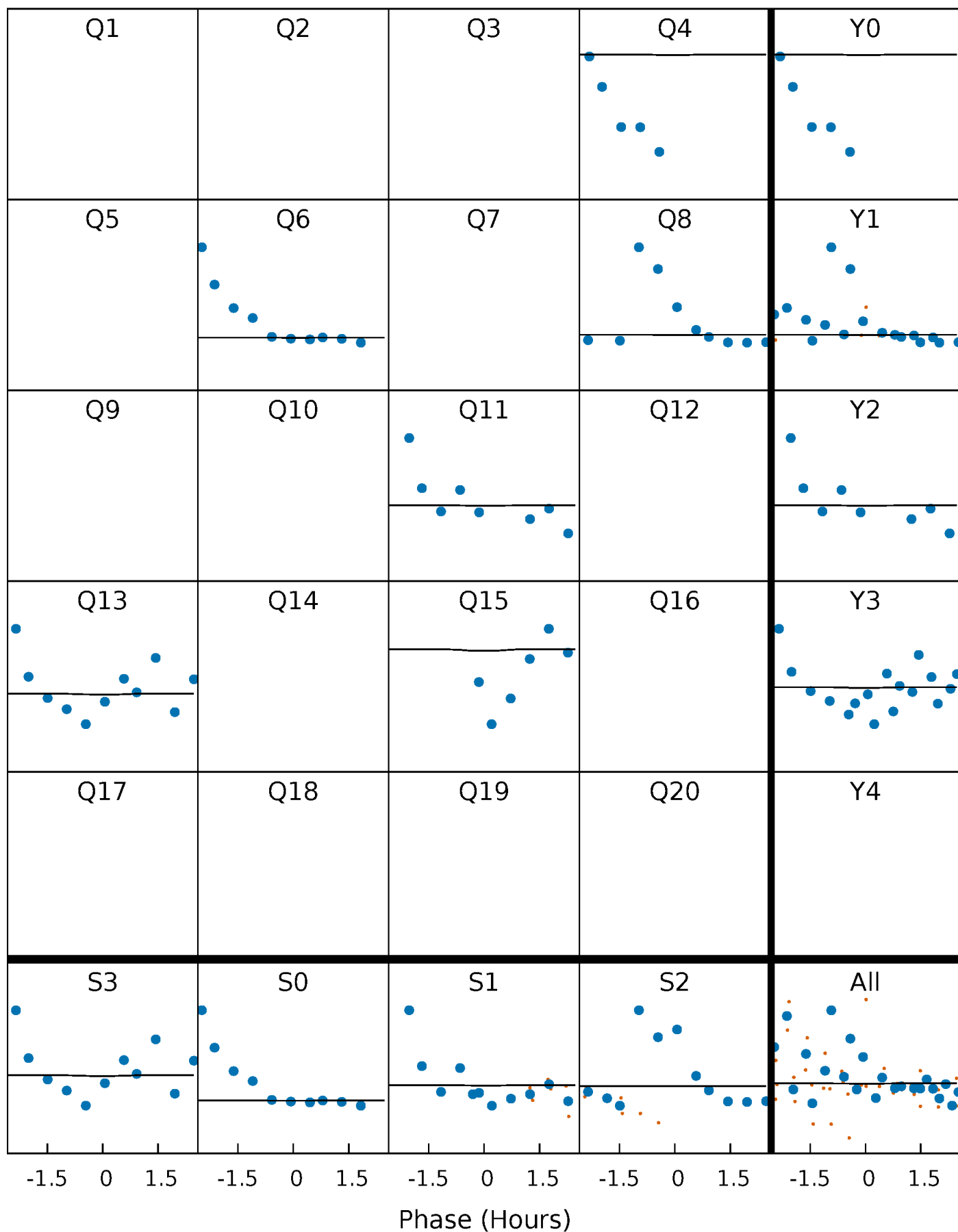
# PDC Quarter-Phased Transit Curves

TCE 011036972-03     $P=211.151208$  Days     $T_0=165.355494$  (BKJD)



# DV Quarter-Phased Transit Curves

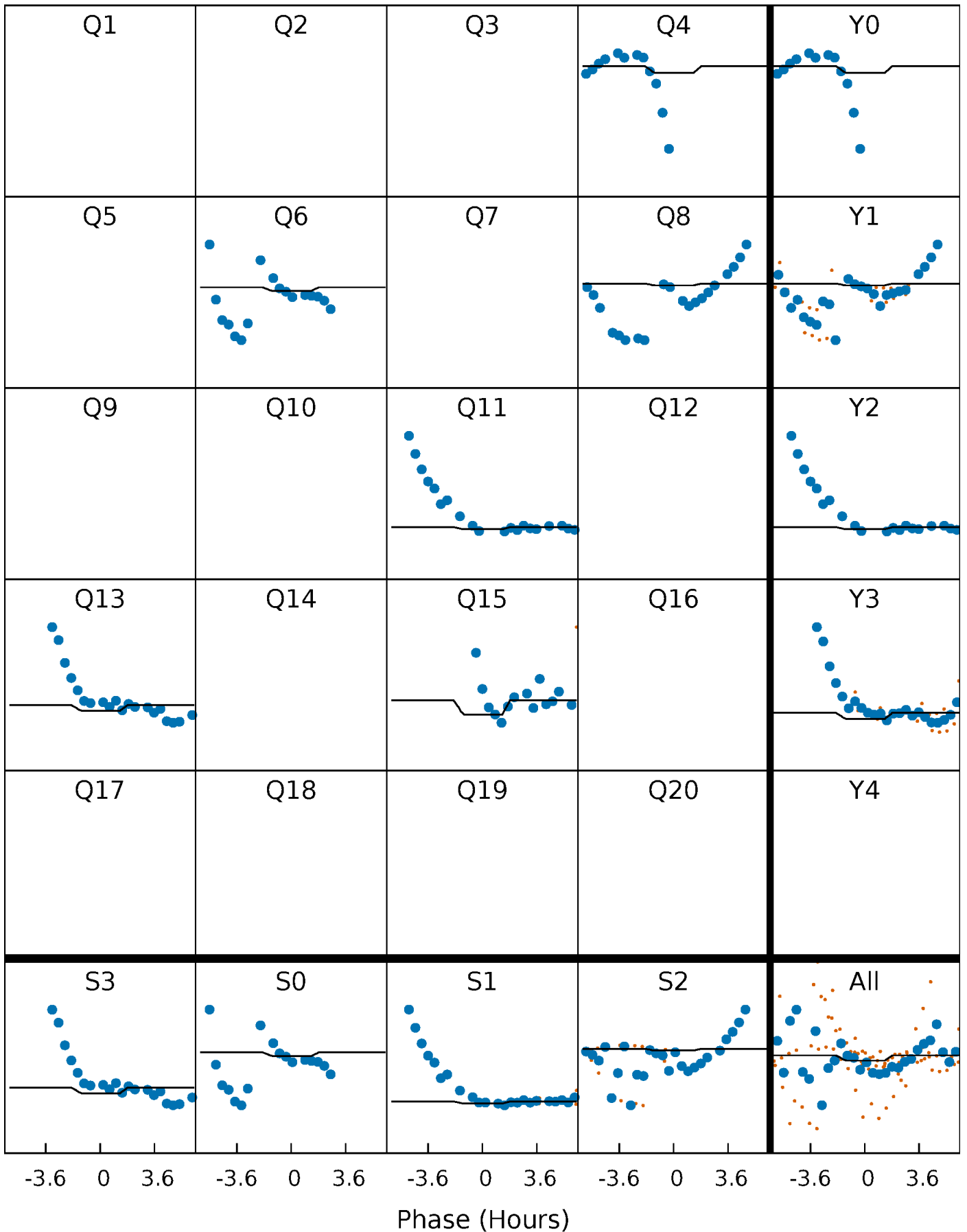
TCE 011036972-03     $P=211.151208$  Days     $T_0=165.355494$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

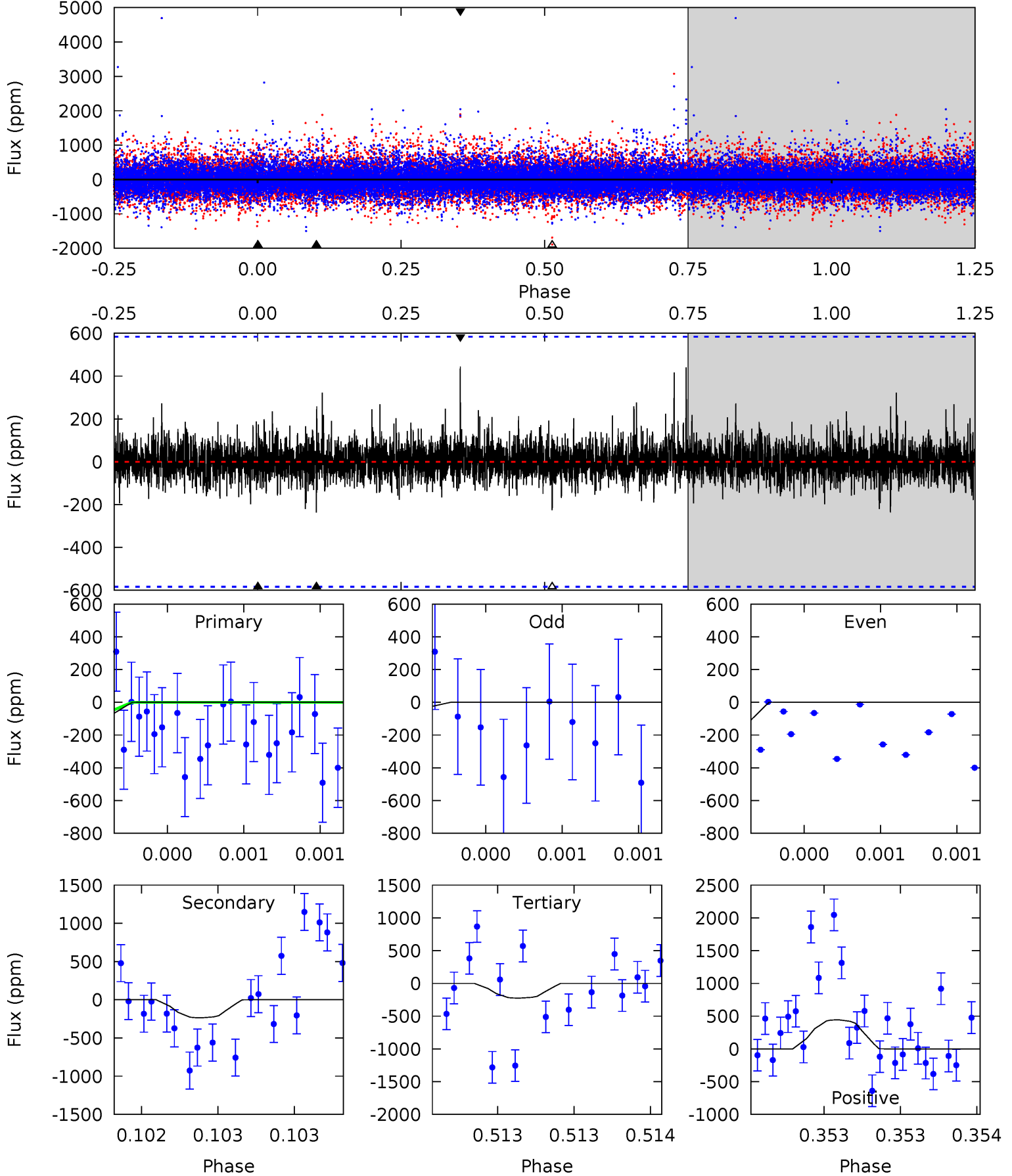
TCE 011036972-03   P=211.169598 Days    $T_0=165.282515$  (BKJD)



# DV Model-Shift Uniqueness Test

011036972-03, P = 211.151208 Days, E = 165.355494 Days

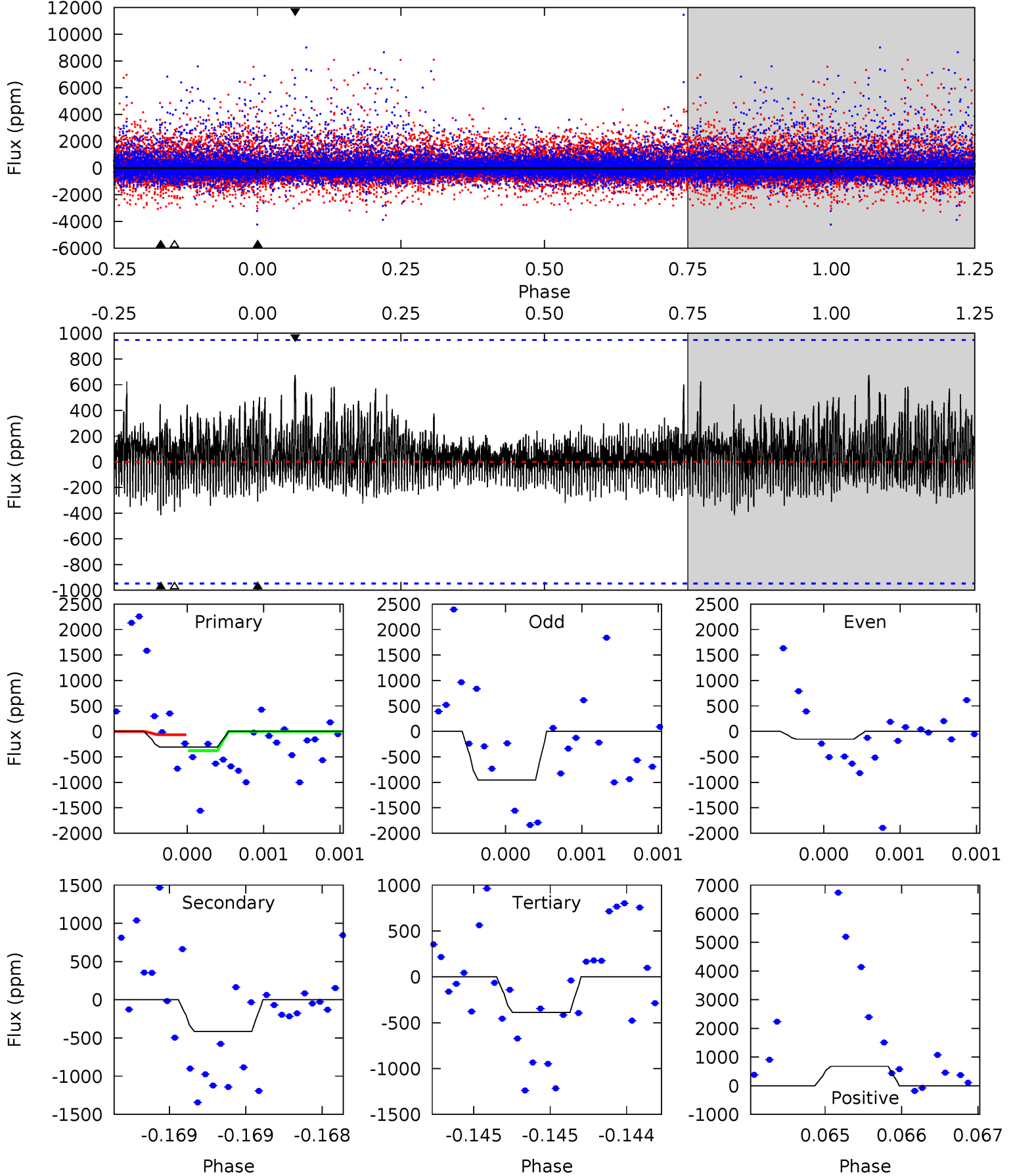
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
0.97	2.29	2.18	4.30	5.65	3.60	0.54	-1.22	-3.34	0.11	-2.01	0.54	-11.1	0.65	0.29



# Alt Model-Shift Uniqueness Test

011036972-03, P = 211.169598 Days, E = 165.282515 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
1.81	2.42	2.27	3.94	5.52	3.40	0.80	-0.46	-2.13	0.15	-1.52	1.89	3.23	0.62	0.90



### Stellar Parameters For KIC 011036972

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4955^{+137}_{-1}$	$3.436^{+0.300}_{-0.300}$	$-0.280^{+0.300}_{-0.200}$	$2.977^{+1.638}_{-0.882}$	$0.882^{+0.290}_{-0.134}$	$0.047^{+0.088}_{-0.030}$
	+3%/-0%	+9%/-9%	+107%/-71%	+55%/-30%	+33%/-15%	+186%/-64%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 011036972-03 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-237 \pm 103$	$44.77^{+55.39}_{-32.86}$	$640^{+92}_{-64}$	$2472^{+1075}_{-455}$	$28^{+369}_{-23}$
Alt.	$-415 \pm 172$	$43.55^{+58.25}_{-29.63}$	$641^{+77}_{-67}$	$2662^{+1083}_{-511}$	$49^{+482}_{-41}$

$T_{max}$  = Theoretical Maximum Planetary Temperature  
 $T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )  
 $A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

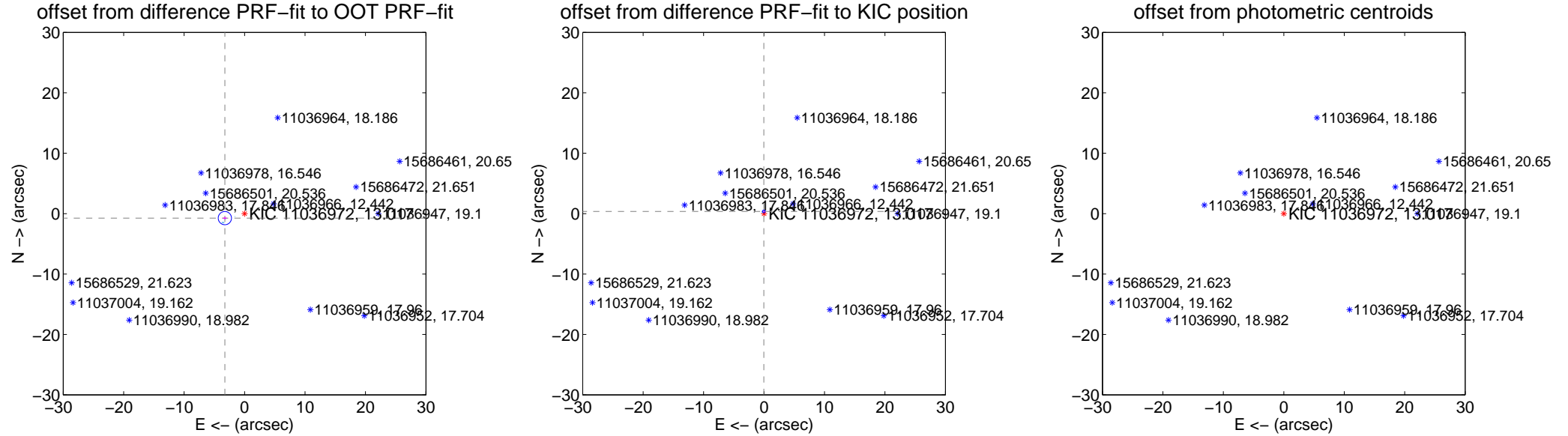
## DV Centroid Data

Supplemental centroid analysis for 011036972-03. Kepler magnitude: 13.02. Transit SNR 0.05

There are 5 quarters with good PRF difference image offsets

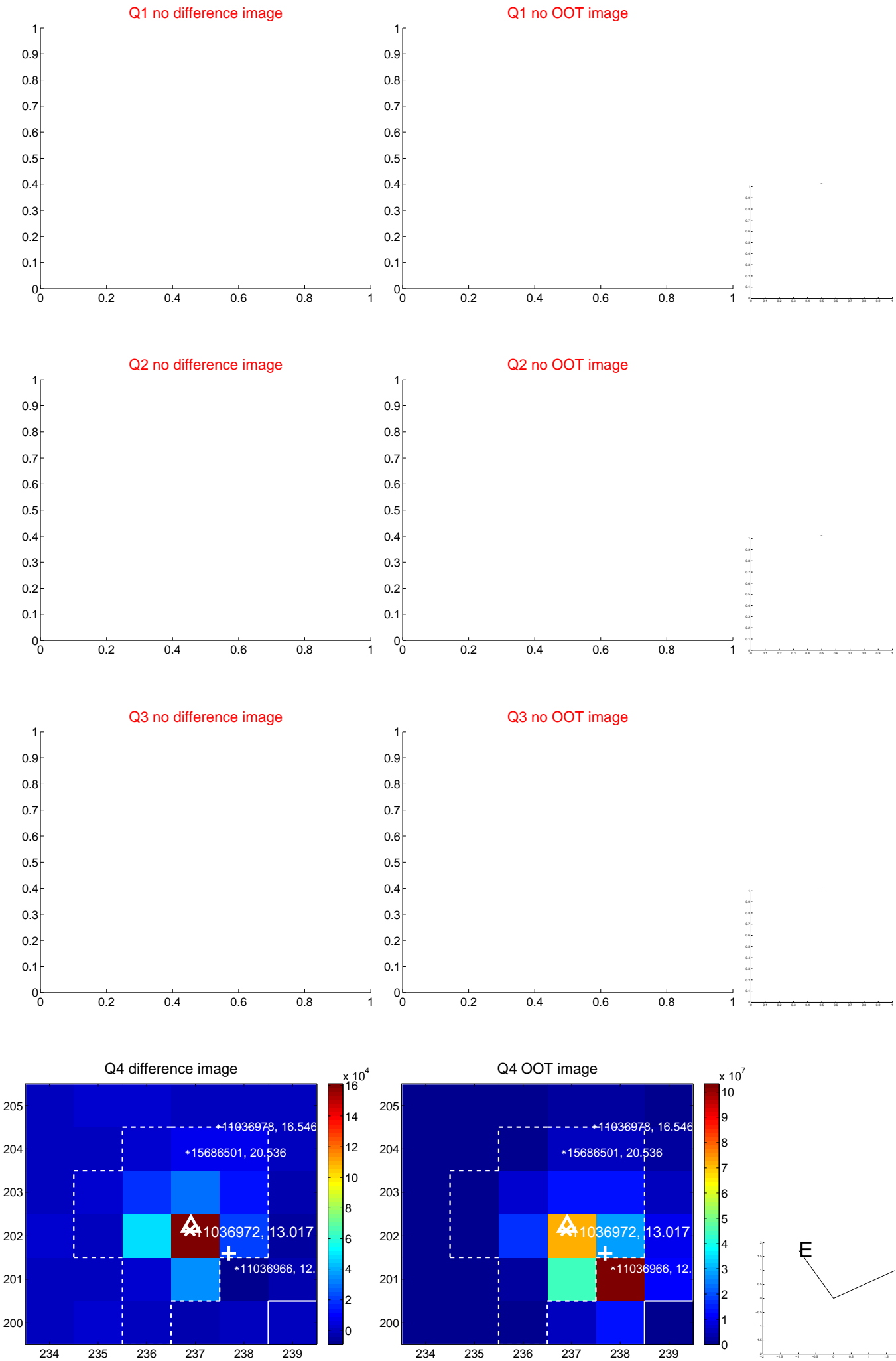
The OOT PRF centroid is offset from the target star catalog position by about 3.43 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.346 \pm 0.366$	9.15	$3.262 \pm 0.342$	$-0.742 \pm 0.179$
PRF-fit source offset from KIC position	$0.364 \pm 0.076$	4.77	$0.041 \pm 0.076$	$0.361 \pm 0.076$
photometric centroid source offset	$75.29 \pm 169.38$	0.44	$-68.41 \pm 183.86$	$-31.44 \pm 66.82$



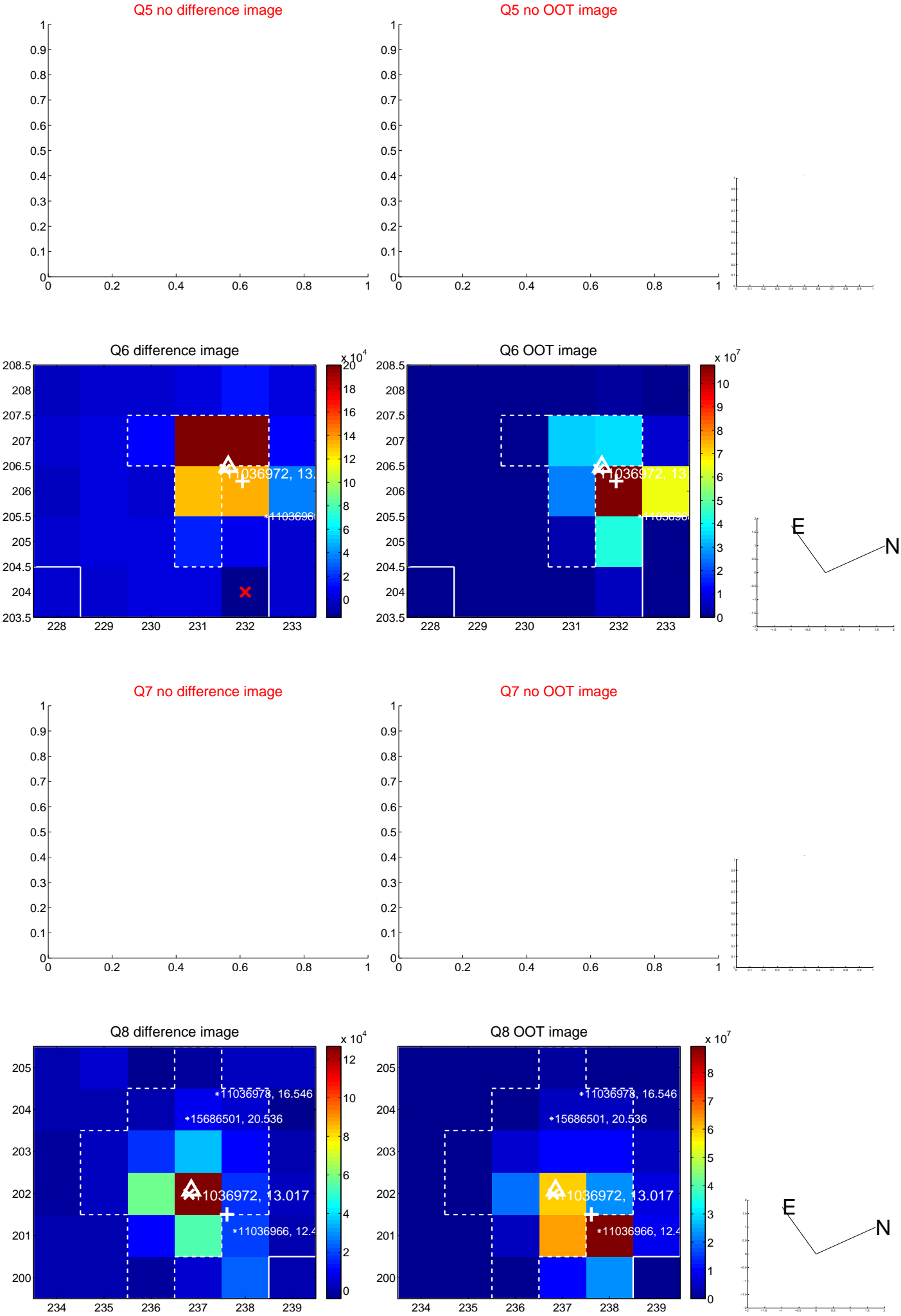
Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

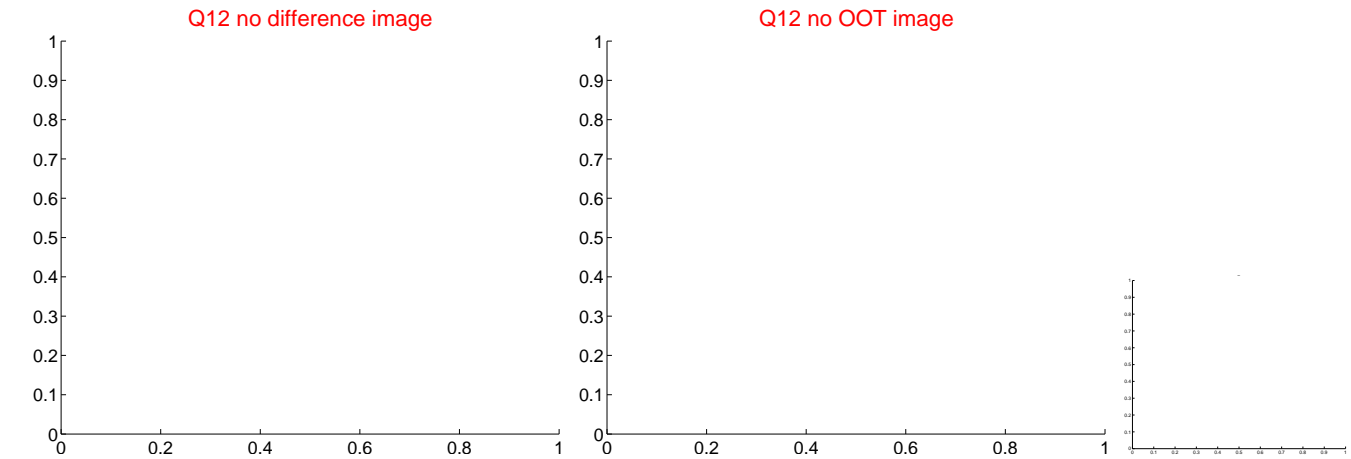
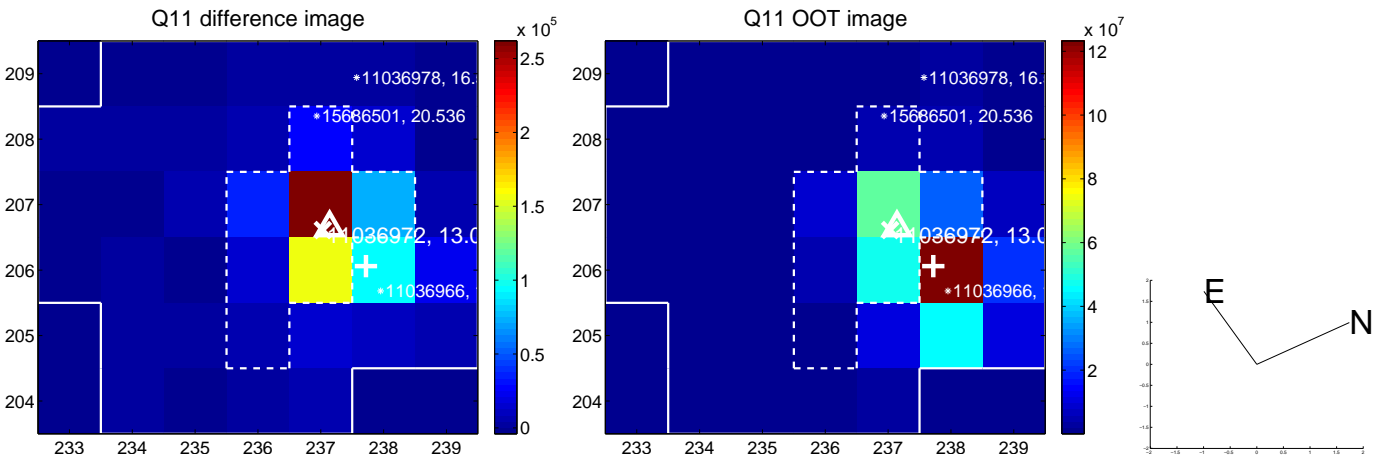
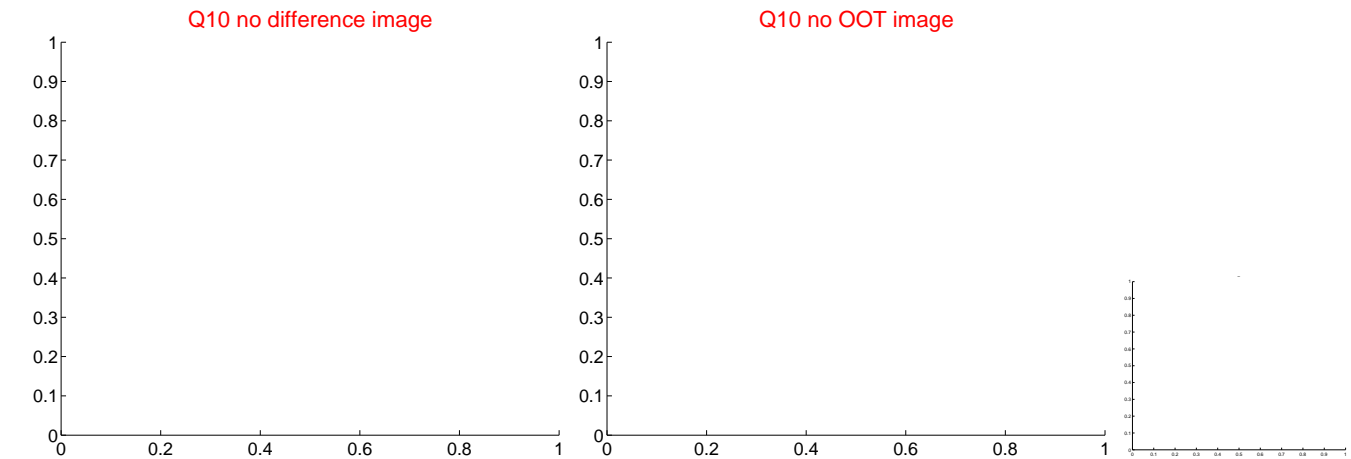
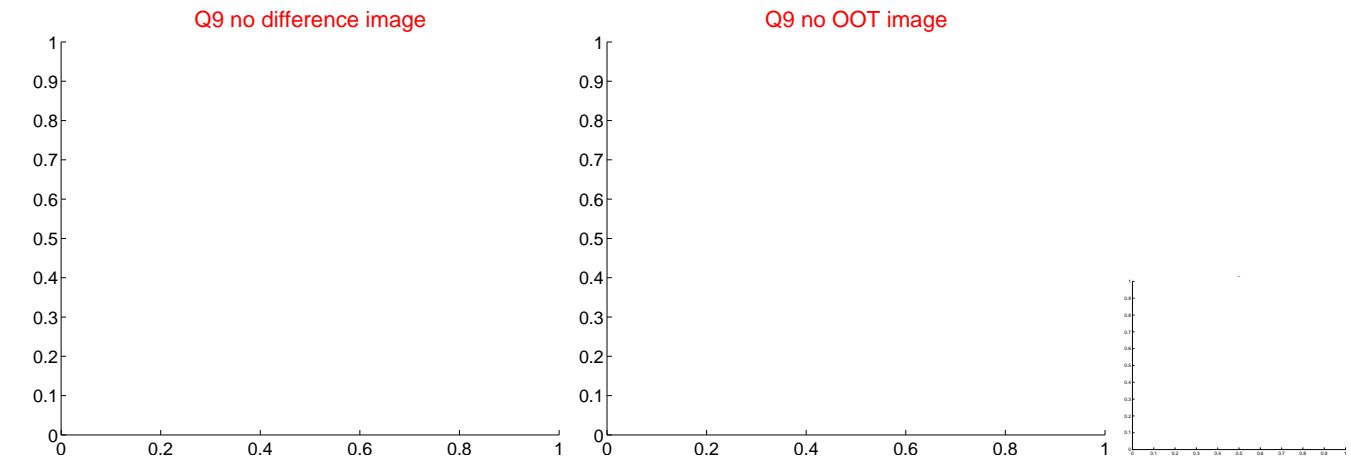




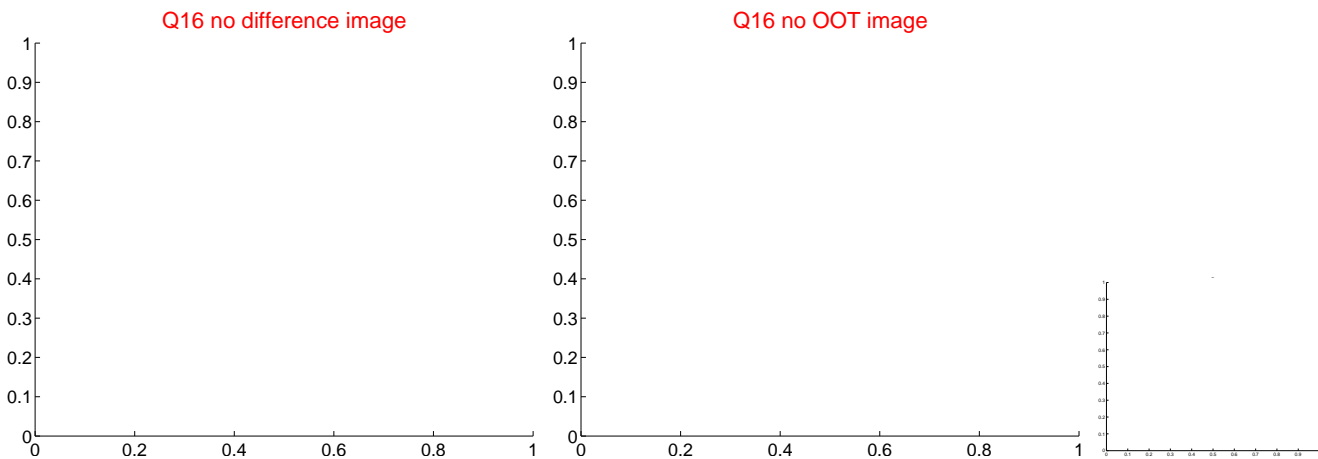
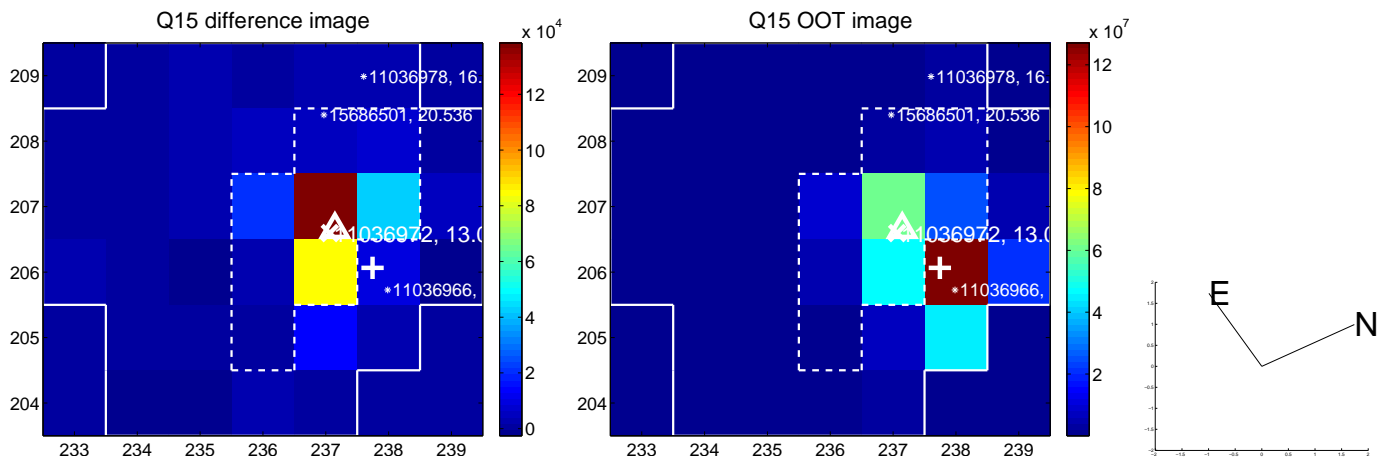
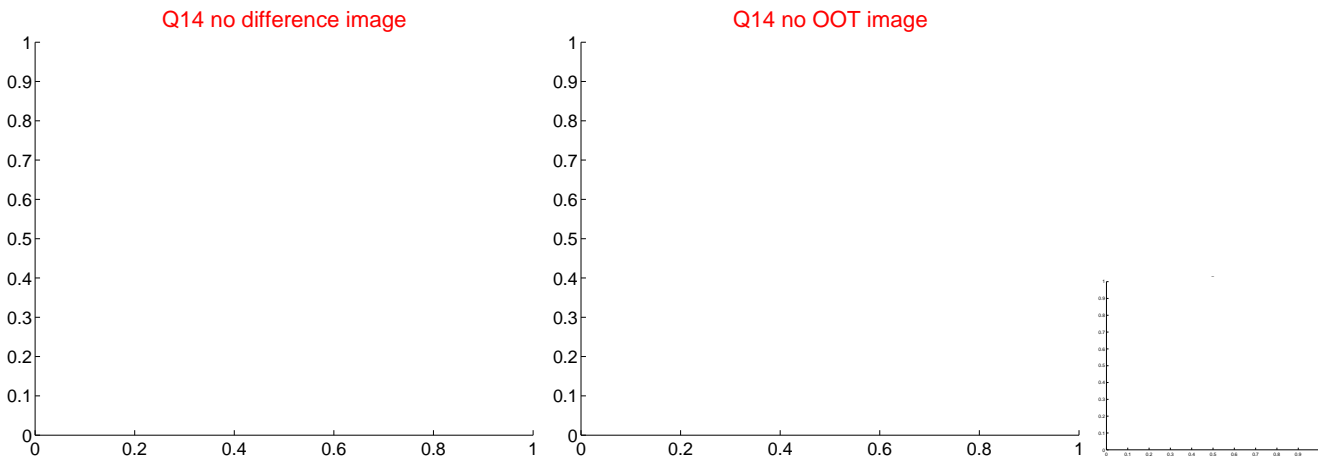
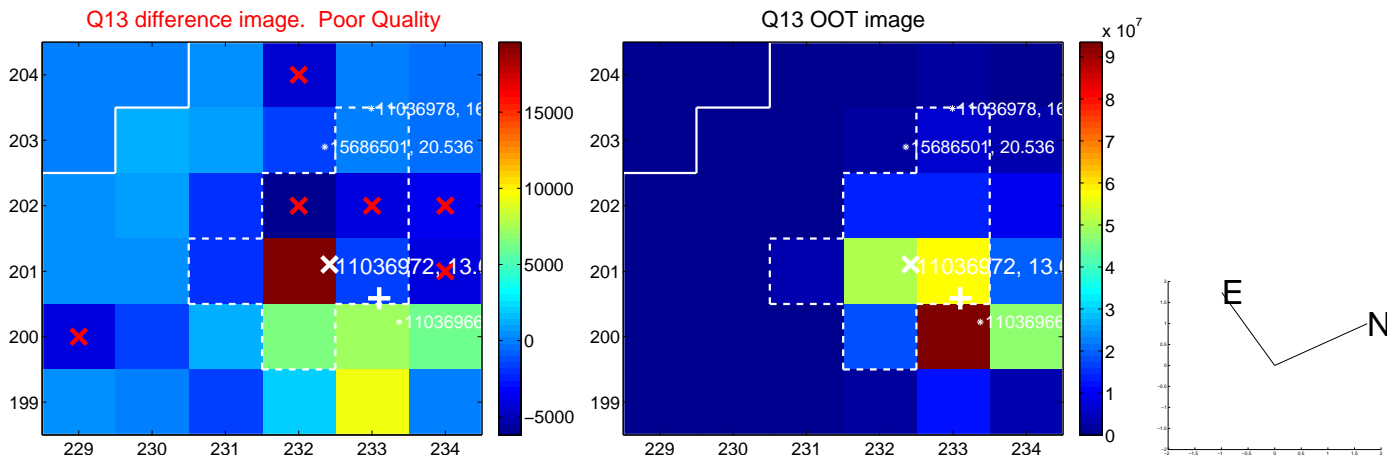
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



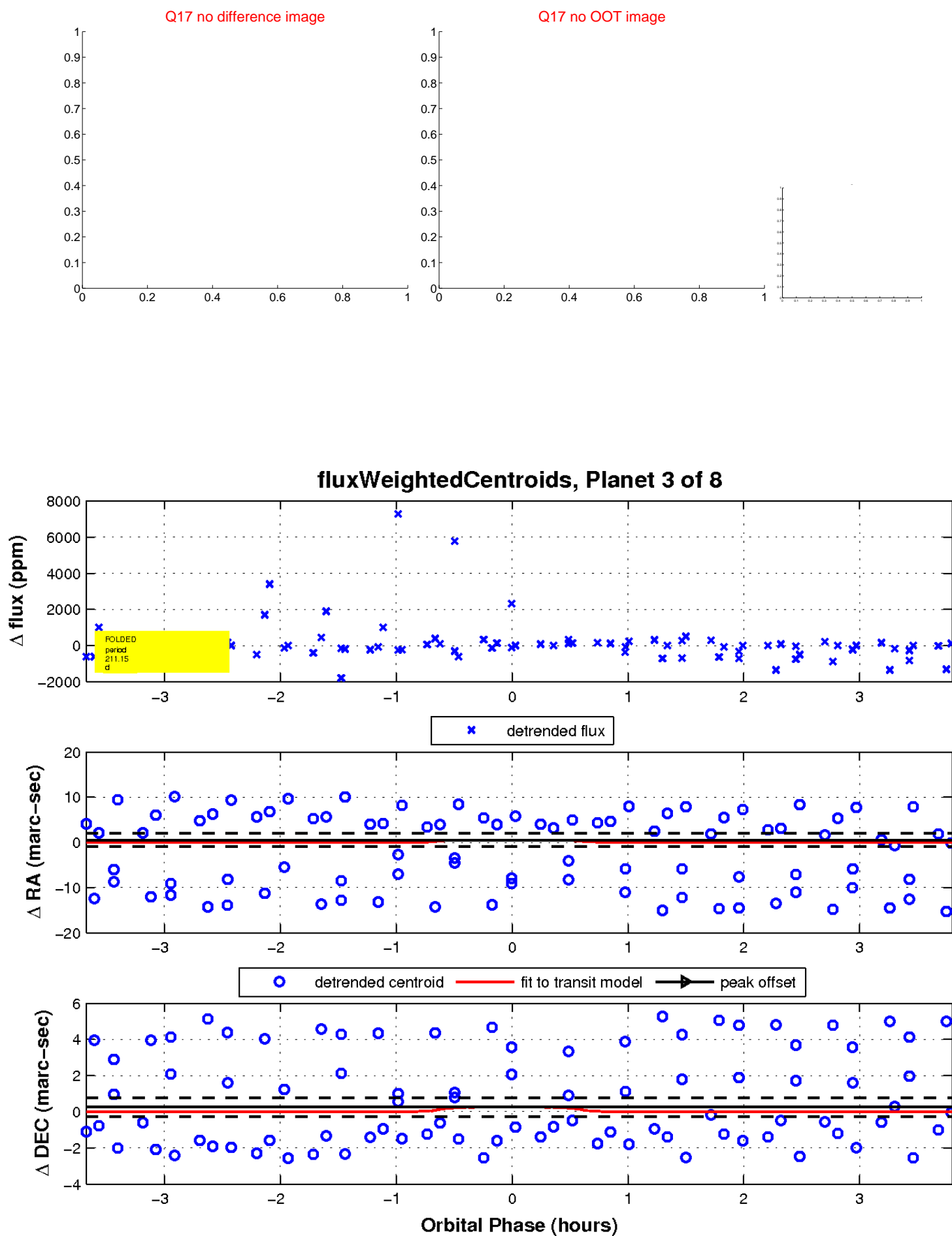
white ×: KIC target position; +: OOT centroid; △: difference centroid. red ✕: large negative pixel value.



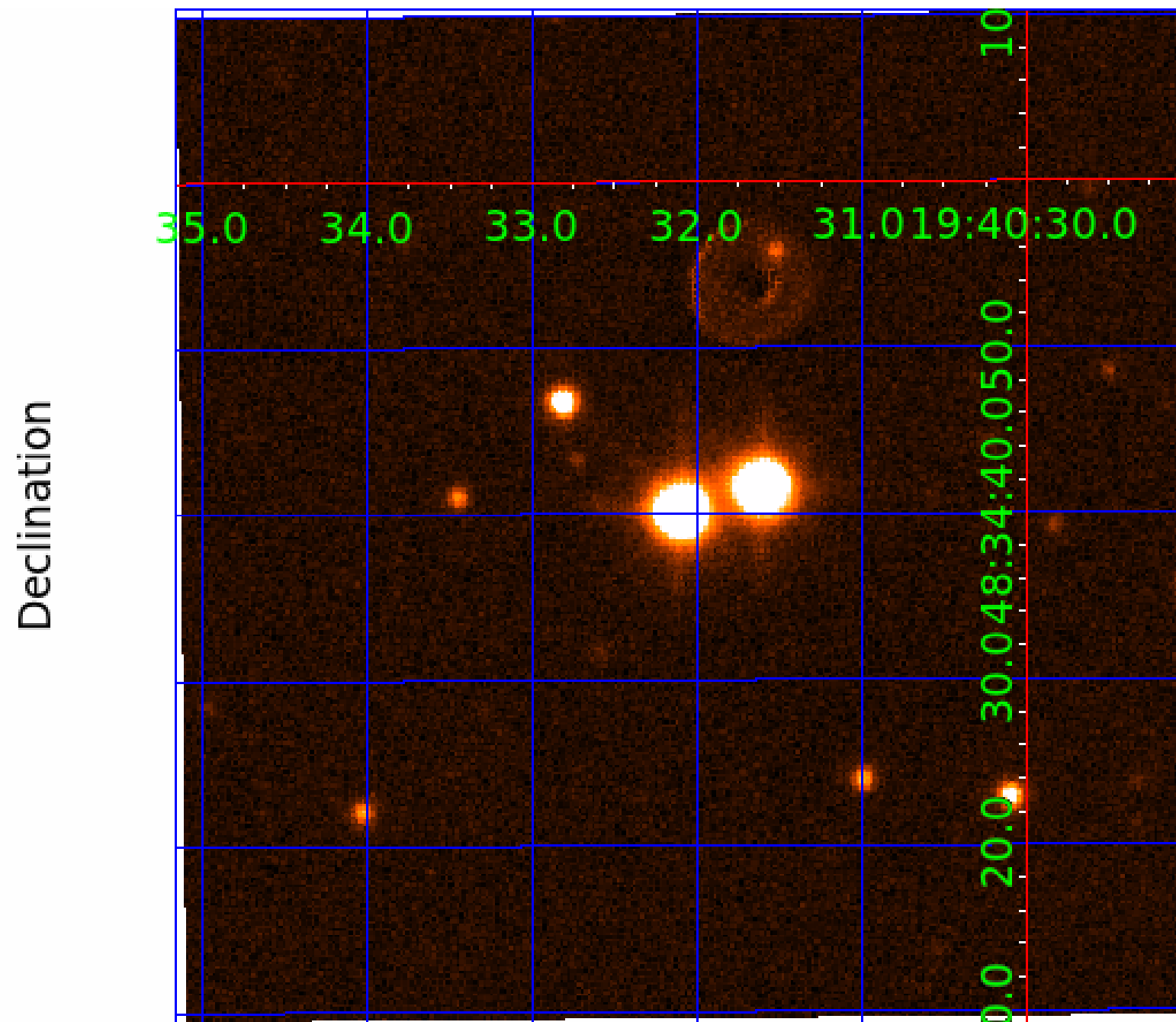
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image



# KIC 011036972

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011036972-01	OBS	No	1.020557	131.809893	71.6	3.740	15.7	7.5	2.98	4955	3.07	13217.17
011036972-02	OBS	No	429.246246	179.262160	1289.7	6.874	14.0	4.3	2.98	4955	10.40	4.19
011036972-03	OBS	No	211.151208	165.355494	7.9	1.293	13.4	0.1	2.98	4955	0.98	10.80
011036972-04	OBS	No	195.212733	272.157520	1557.8	3.014	12.2	7.2	2.98	4955	11.57	11.99
011036972-05	OBS	No	218.996531	188.473447	2128.3	16.978	10.6	5.3	2.98	4955	16.93	10.29
011036972-06	OBS	No	213.271097	204.974825	807.5	4.853	11.3	3.9	2.98	4955	8.26	10.66
011036972-07	OBS	No	74.943778	202.204954	1102.9	15.979	9.6	5.8	2.98	4955	9.70	42.98
011036972-08	OBS	No	178.823053	210.737521	1175.6	5.577	11.6	5.7	2.98	4955	10.79	13.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011036972-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
011036972-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
011036972-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
011036972-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
011036972-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS—HALO_GHOST
011036972-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_KIC_POS
011036972-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS—HALO_GHOST
011036972-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_NOFITS— HALO_GHOST

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

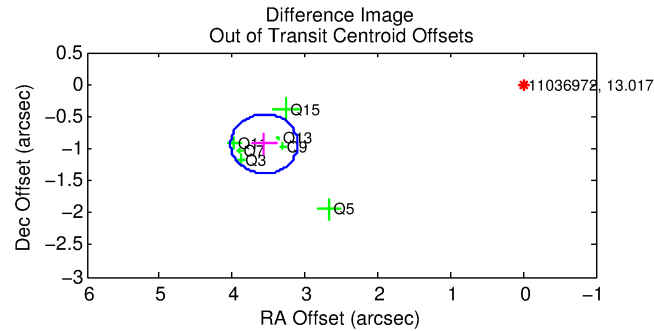
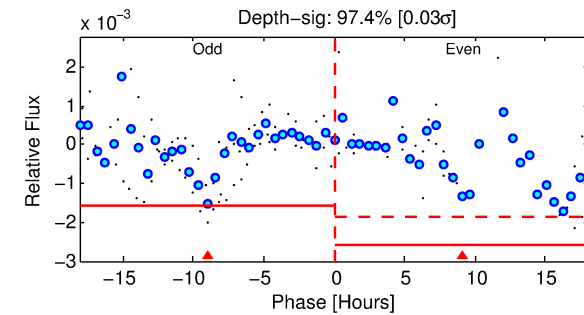
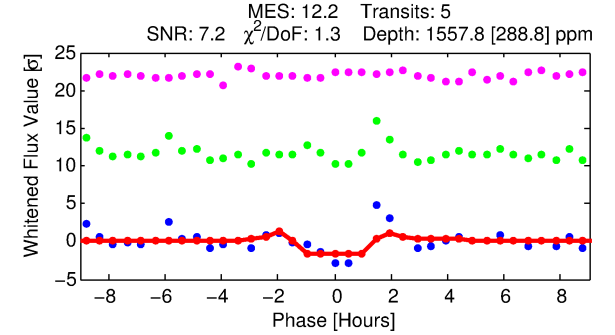
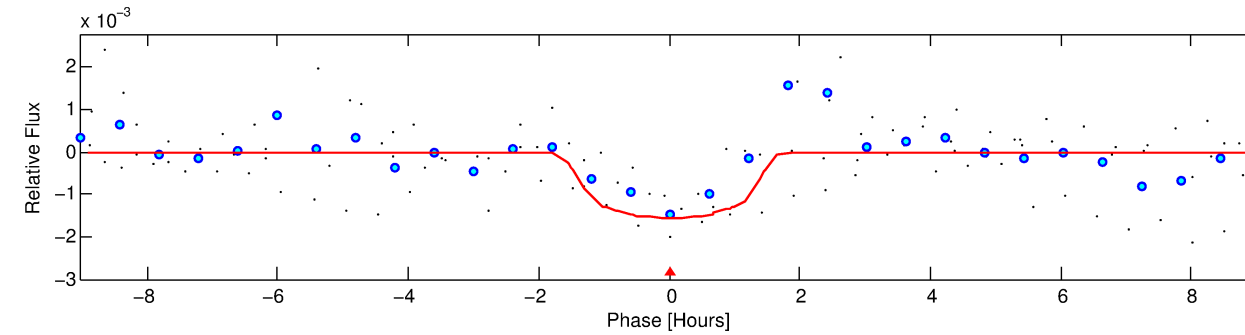
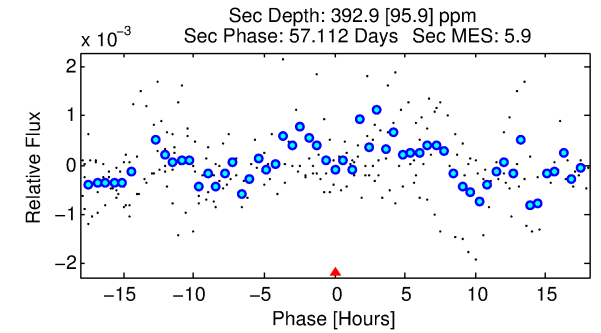
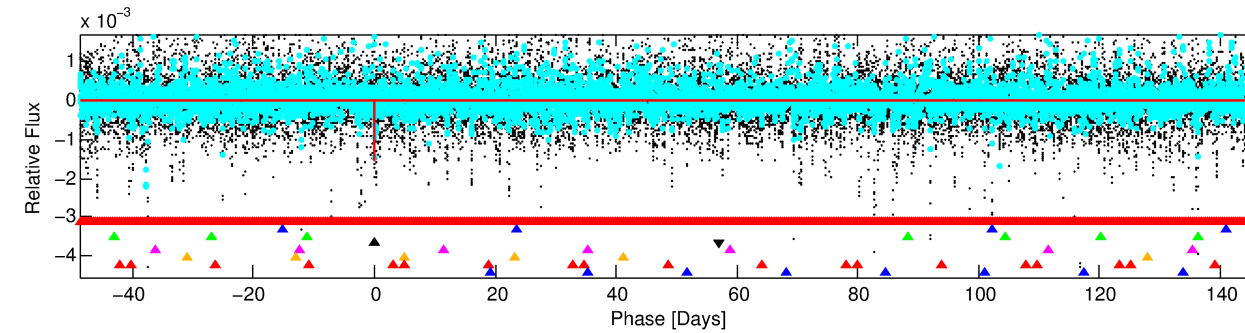
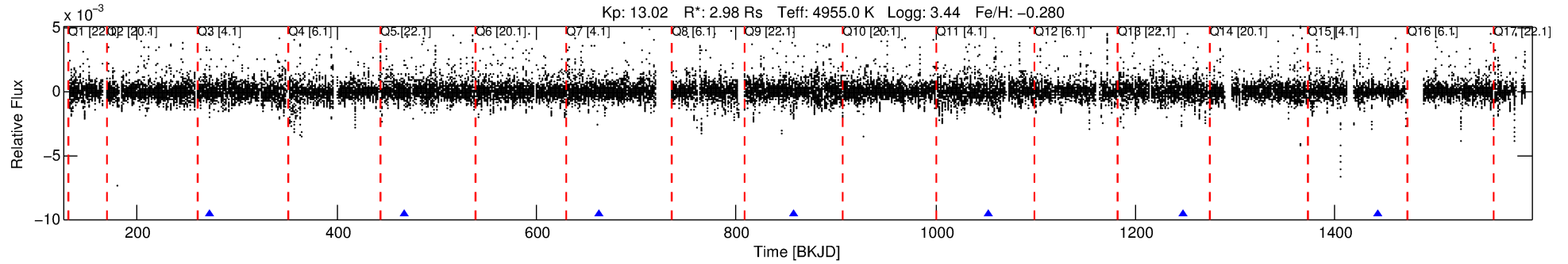
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011036972-04

No Significant Match Found

# DV One-Page Summary

KIC: 11036972 Candidate: 4 of 8 Period: 195.213 d



## DV Fit Results:

Period = 195.21273 [0.00172] d  
Epoch = 272.1575 [0.0059] BKJD  
Rp/R\* = 0.0356 [0.1680]  
a/R\* = 488.98 [8043.25]  
b = 0.31 [48.83]  
Seff = 11.99 [7.18]  
Teq = 475 [71] K  
Rp = 11.57 [54.95] Re  
a = 0.6318 [0.2736] AU  
Ag = 644.54 [6095.53] [0.11σ]  
Teffp = 3697 [8724] K [0.37σ]

## DV Diagnostic Results:

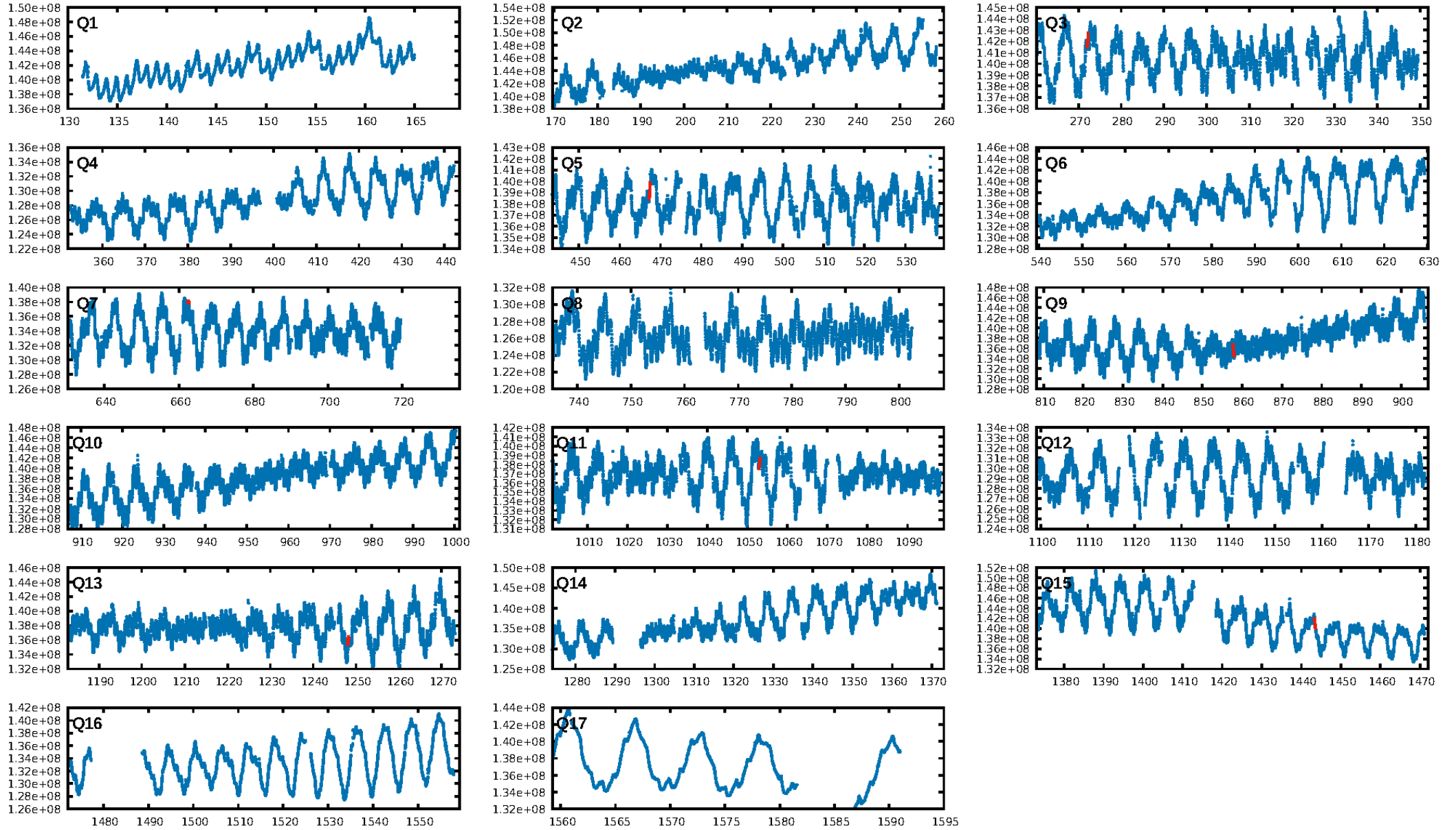
ShortPeriod-sig: 100.0% [62.05σ]  
LongPeriod-sig: 100.0% [116.64σ]  
ModelChiSquare2-sig: 0.4%  
ModelChiSquareGof-sig: 88.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 0.01964  
Centroid-sig: 39.2%  
Centroid-so: 2.330 arcsec [3.41σ]  
OotOffset-rm: 3.681 arcsec [23.96σ]  
KicOffset-rm: 0.423 arcsec [2.13σ]  
OotOffset-st: 0/4/0/3 [7]  
KicOffset-st: 0/4/0/3 [7]  
DiffImageQuality-fgm: 0.57 [4/7]  
DiffImageOverlap-fno: 0.14 [1/7]

Software Revision: svn-ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:15:03 Z

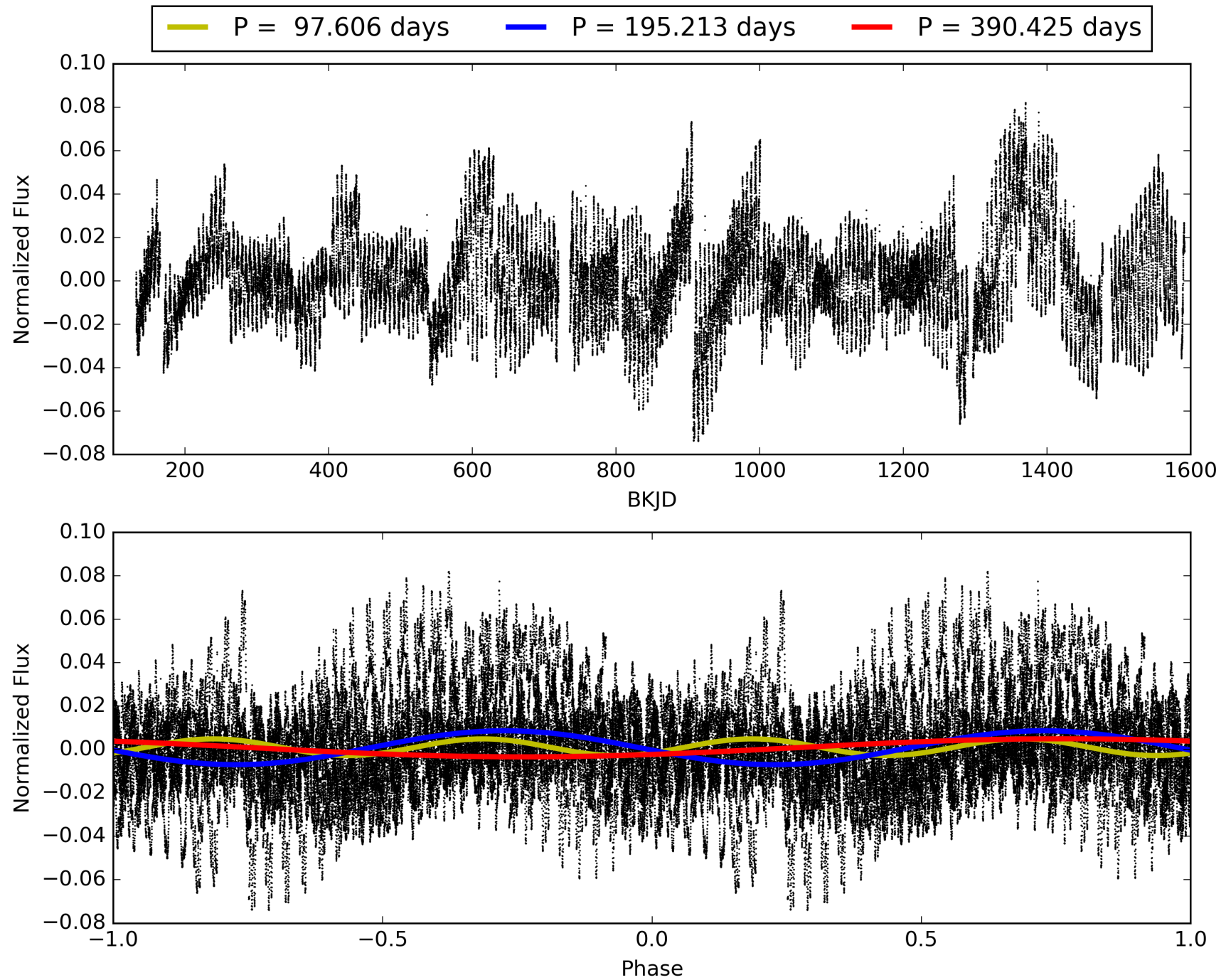
This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center



# TCE 011036972-04, PDC Light Curves

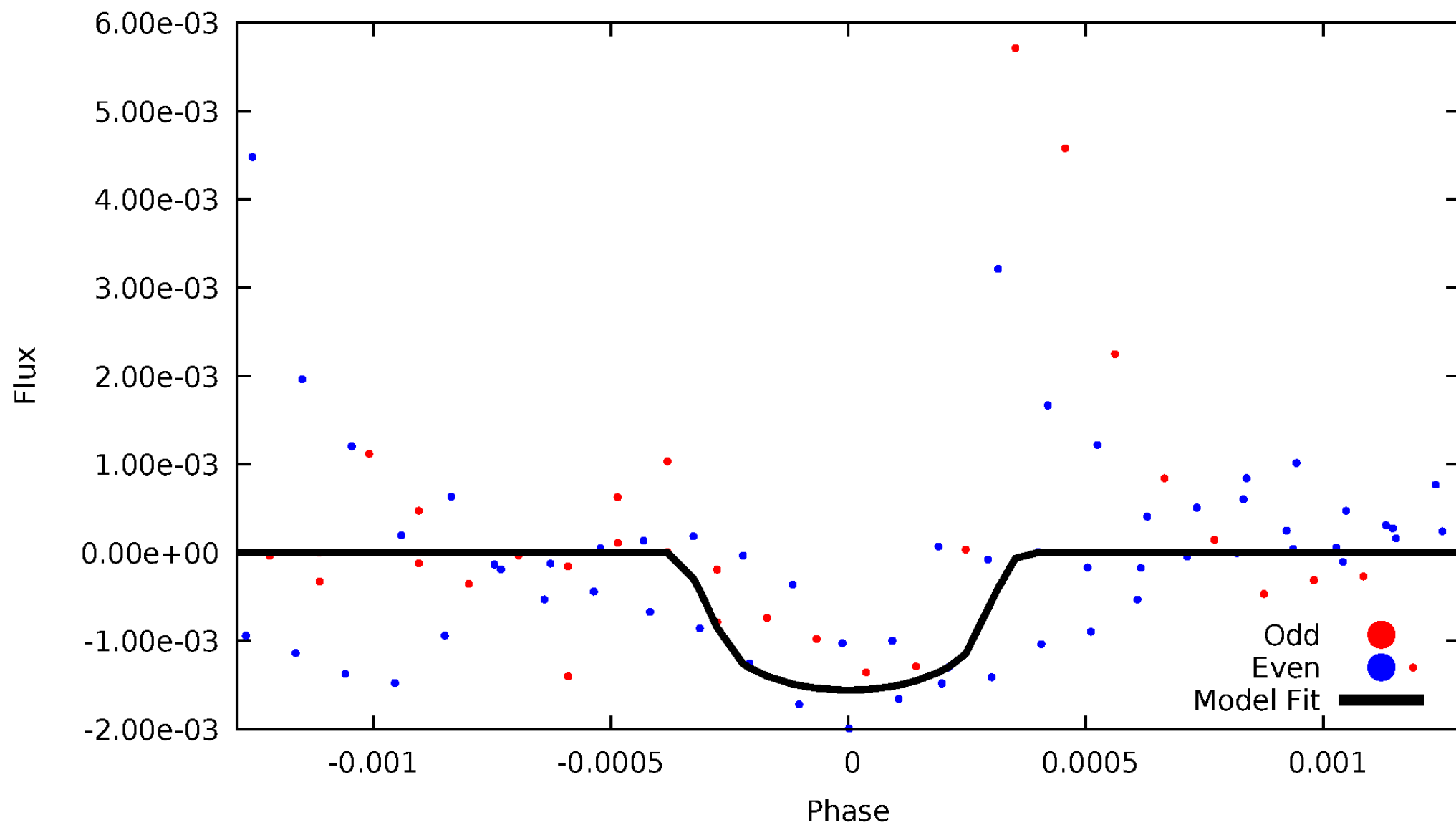


# TCE 011036972-04



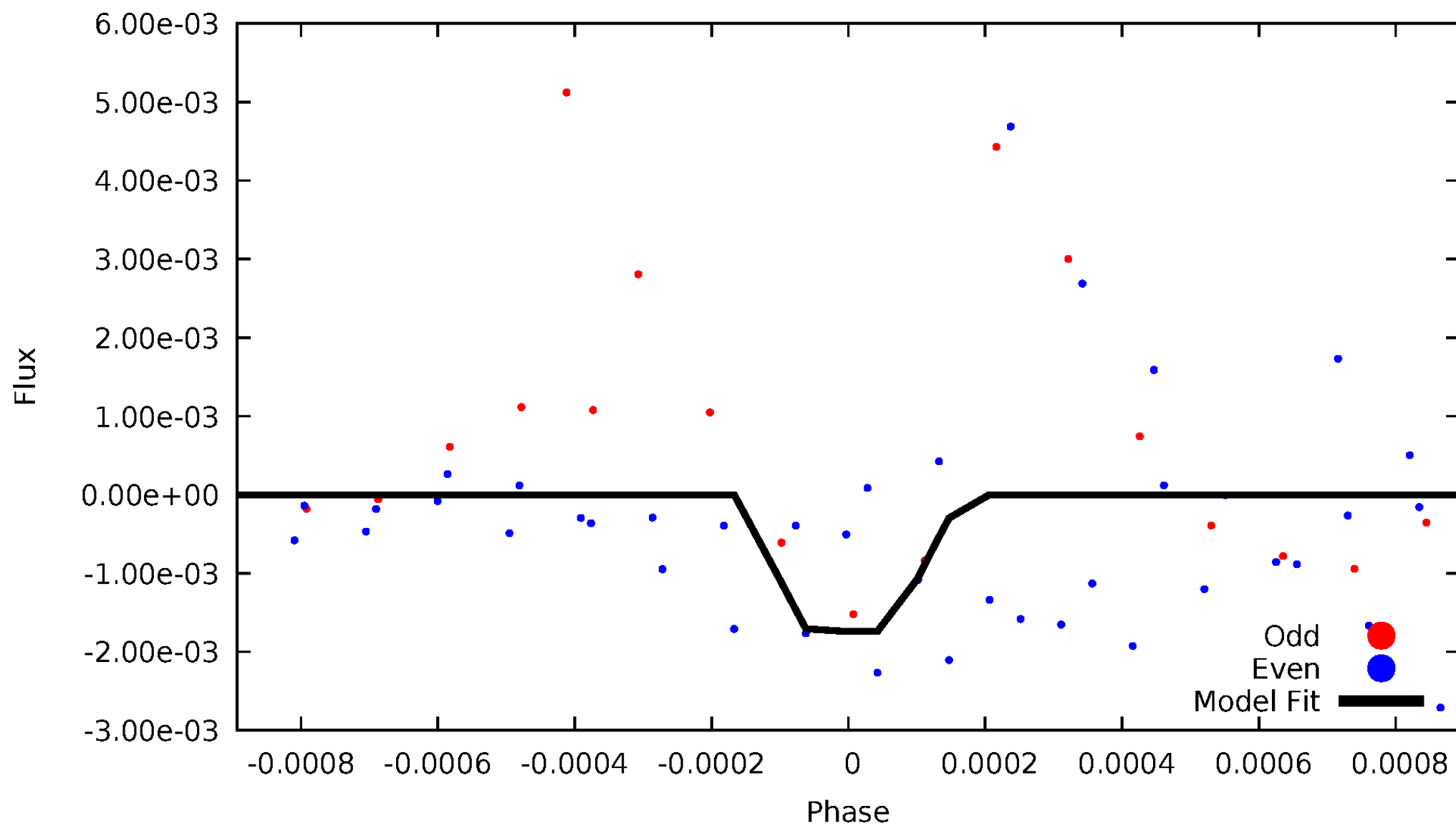
# DV Odd/Even

TCE 011036972-04



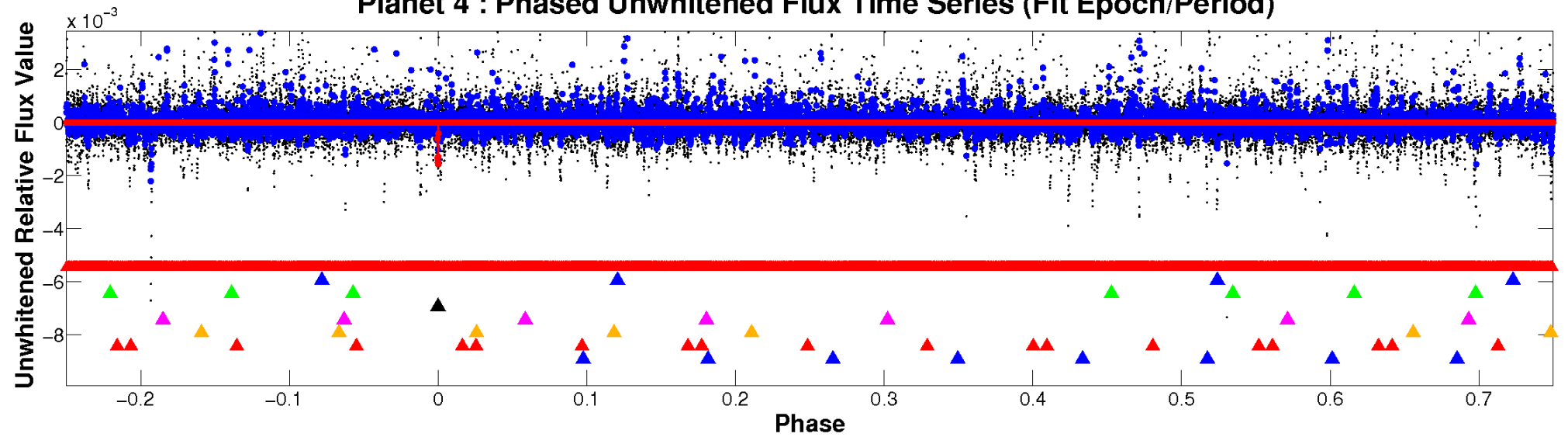
# ALT Odd/Even

TCE 011036972-04

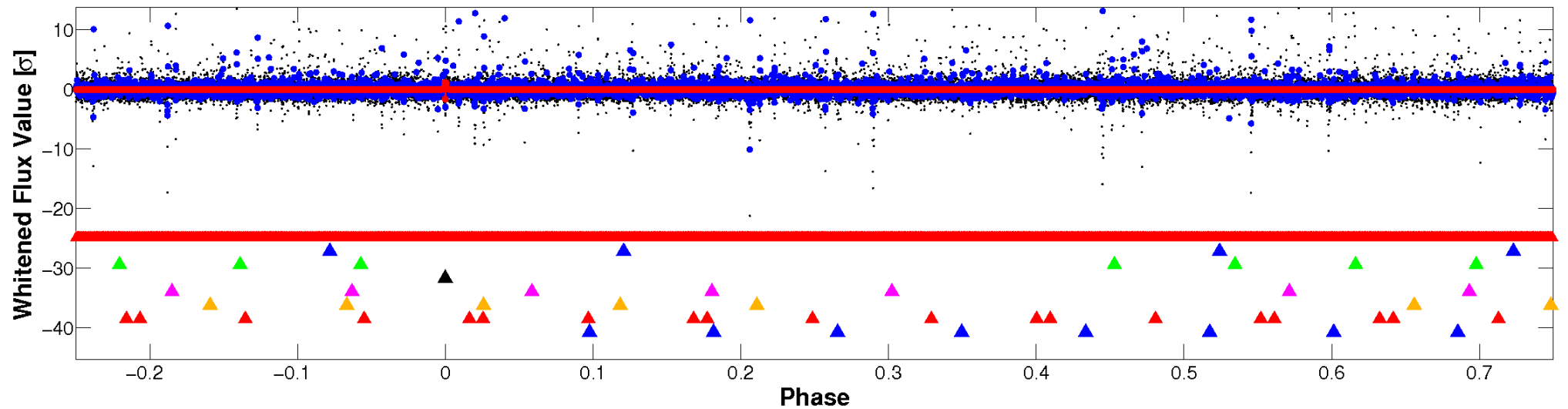


# Non-Whitened Vs. Whitened Light Curve

## Planet 4 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

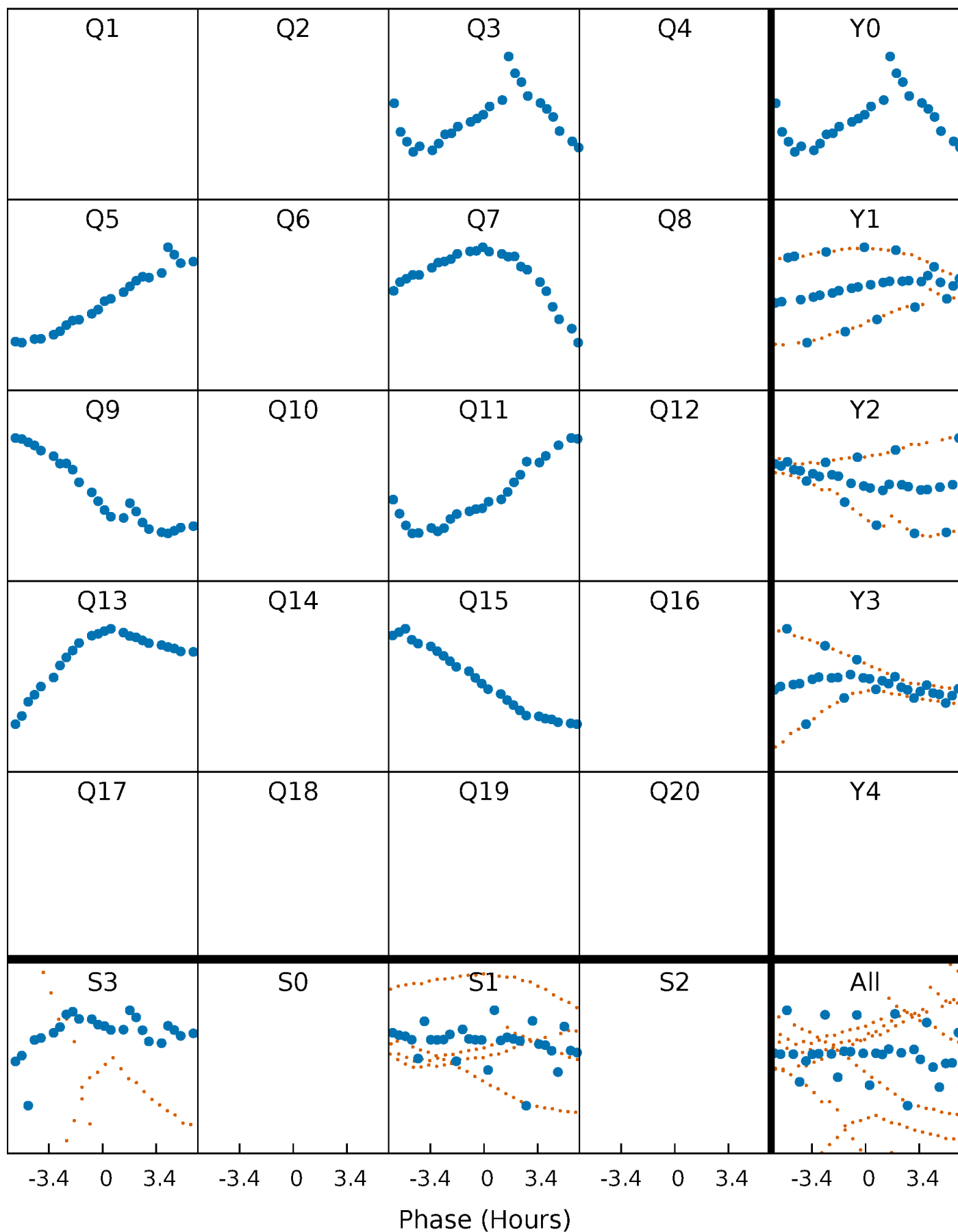


## Planet 4 : Phased Whitened Flux Time Series (Fit Epoch/Period)



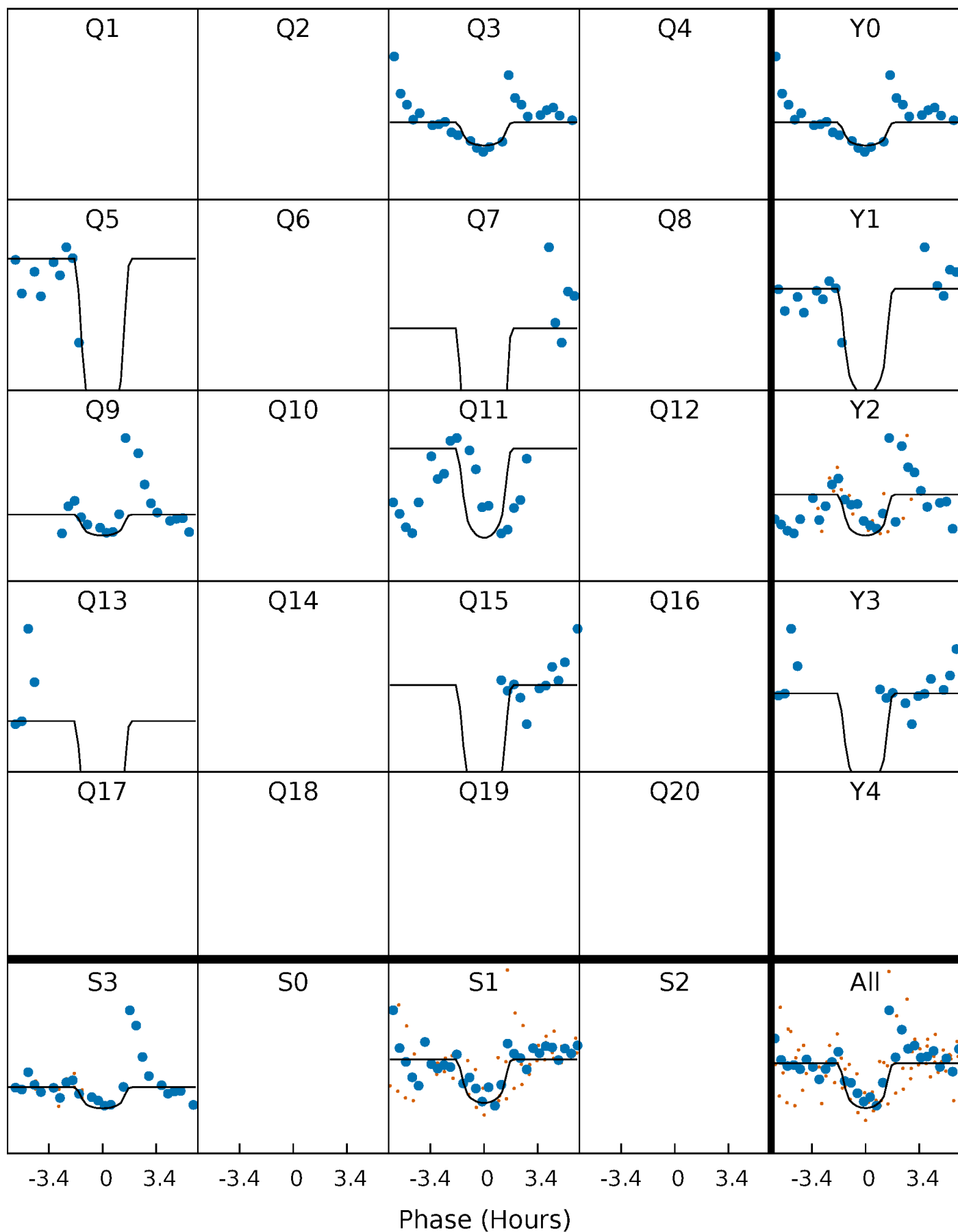
# PDC Quarter-Phased Transit Curves

TCE 011036972-04 P=195.212733 Days  $T_0=272.157520$  (BKJD)



# DV Quarter-Phased Transit Curves

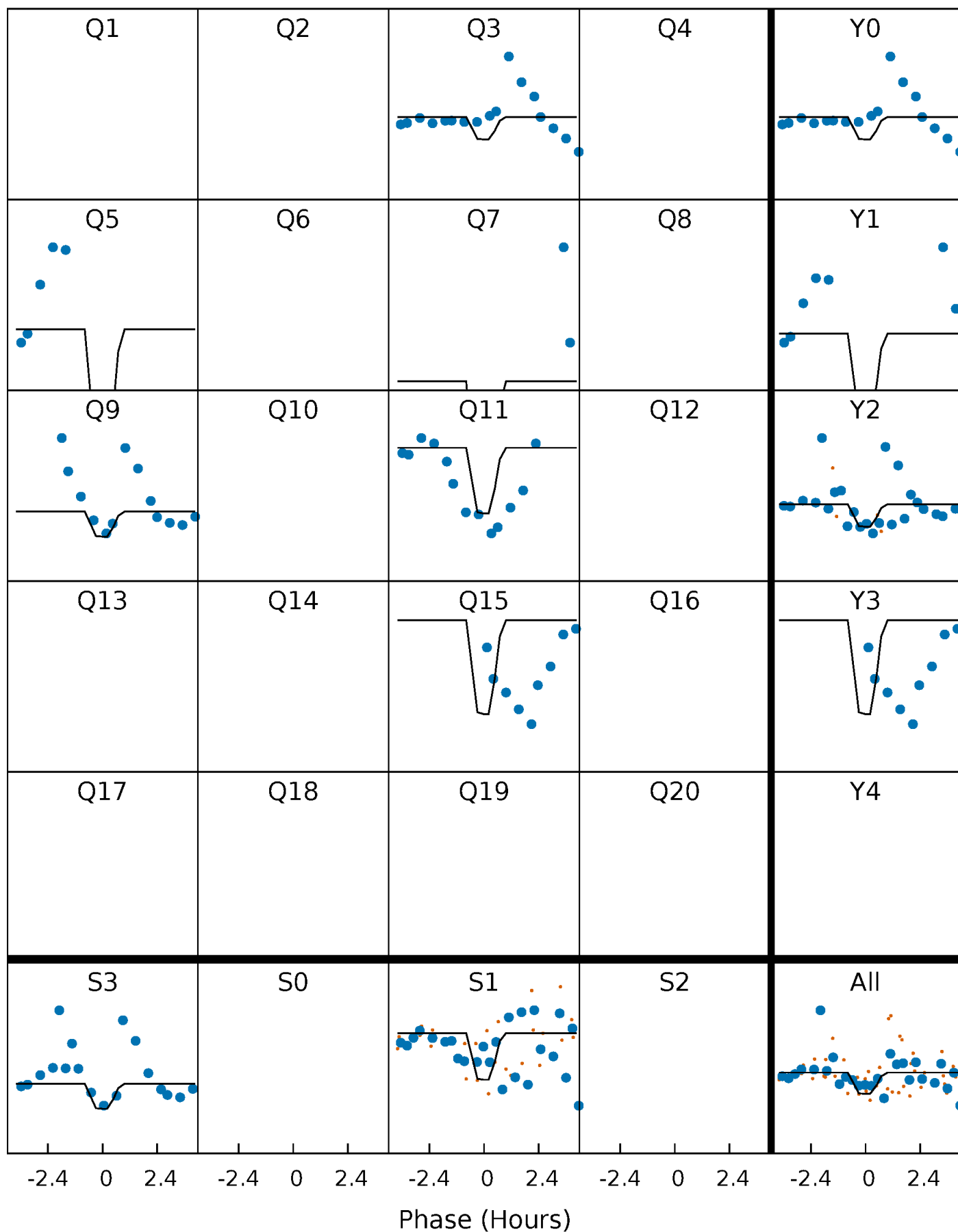
TCE 011036972-04     $P=195.212733$  Days     $T_0=272.157520$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

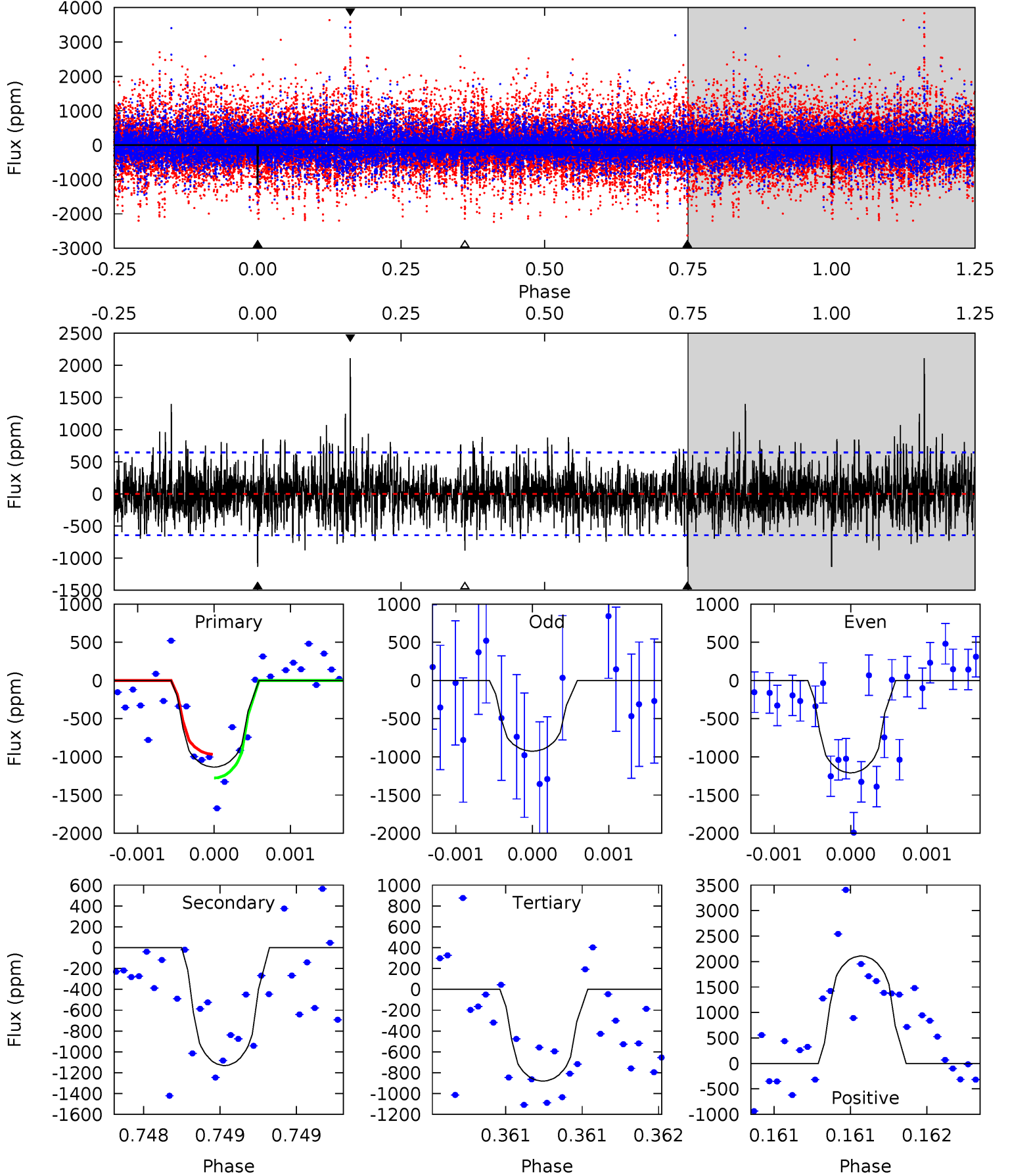
TCE 011036972-04     $P=195.216469$  Days     $T_0=272.172757$  (BKJD)



# DV Model-Shift Uniqueness Test

011036972-04, P = 195.212733 Days, E = 76.944787 Days

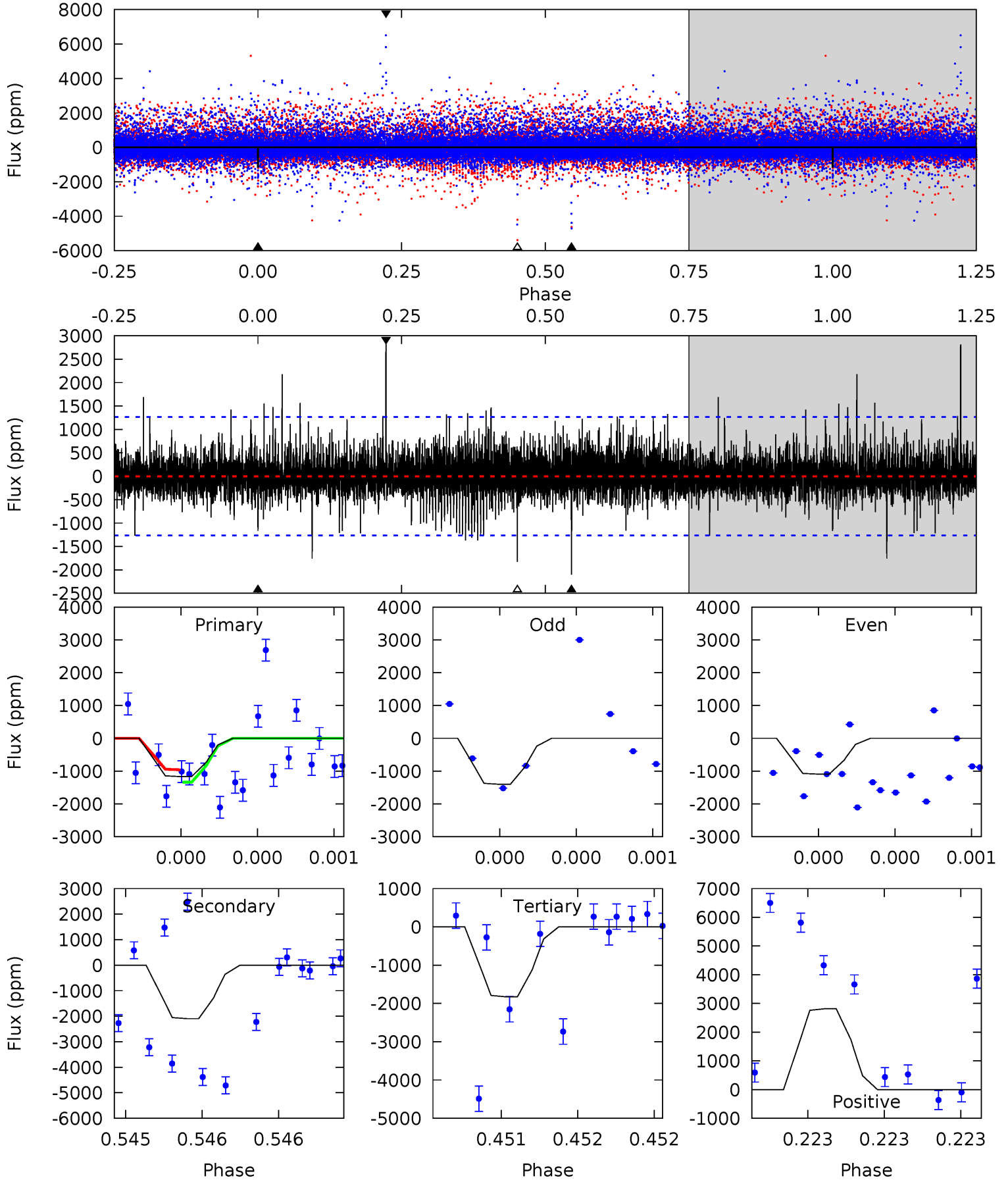
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
9.73	9.71	7.56	18.1	5.52	3.40	2.27	2.17	-8.37	2.15	-8.39	1.03	0.91	0.65	1.34



# Alt Model-Shift Uniqueness Test

011036972-04, P = 195.216469 Days, E = 76.956288 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
5.23	9.38	8.17	12.6	5.66	3.61	1.49	-2.95	-7.37	1.21	-3.22	0.33	1.00	0.57	0.80



### Stellar Parameters For KIC 011036972

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4955^{+137}_{-1}$	$3.436^{+0.300}_{-0.300}$	$-0.280^{+0.300}_{-0.200}$	$2.977^{+1.638}_{-0.882}$	$0.882^{+0.290}_{-0.134}$	$0.047^{+0.088}_{-0.030}$
	+3%/-0%	+9%/-9%	+107%/-71%	+55%/-30%	+33%/-15%	+186%/-64%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 011036972-04 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1132 \pm 117$	$41.73^{+44.38}_{-28.93}$	$659^{+87}_{-70}$	$3102^{+1458}_{-526}$	$141^{+1331}_{-105}$
Alt.	$-2097 \pm 223$	$41.88^{+49.76}_{-29.49}$	$654^{+90}_{-68}$	$3361^{+1922}_{-605}$	$276^{+2903}_{-220}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

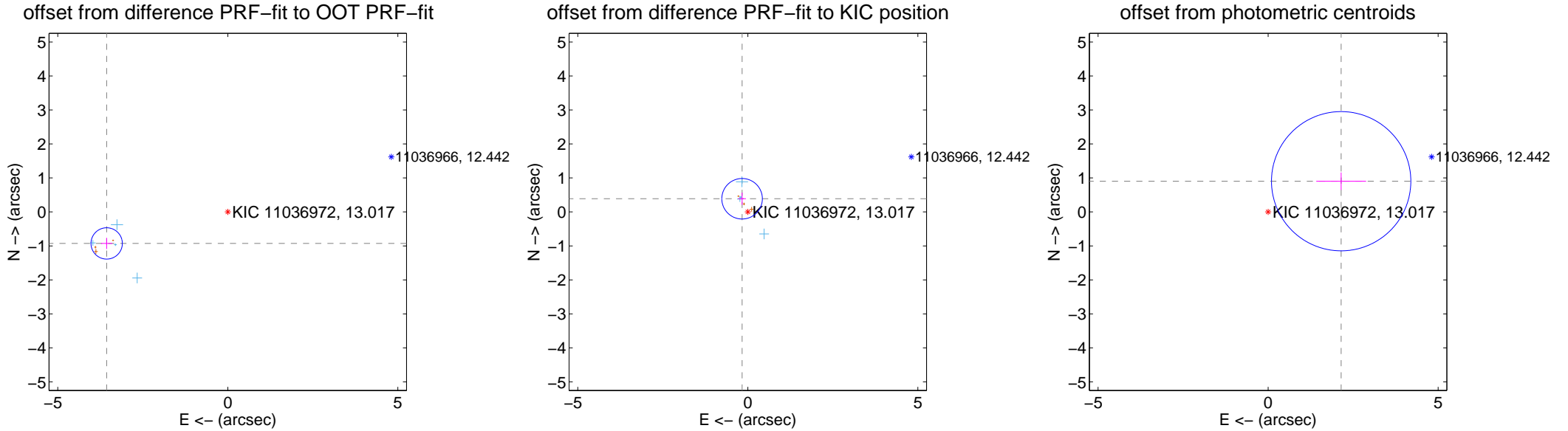
## DV Centroid Data

Supplemental centroid analysis for 011036972-04. Kepler magnitude: 13.02. Transit SNR 7.21

There are 4 quarters with good PRF difference image offsets

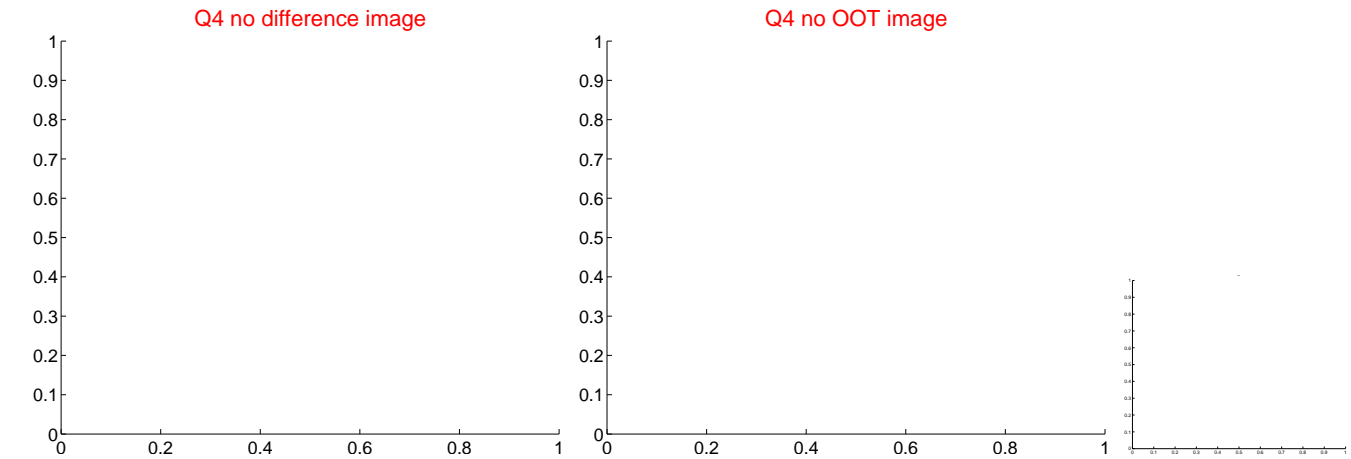
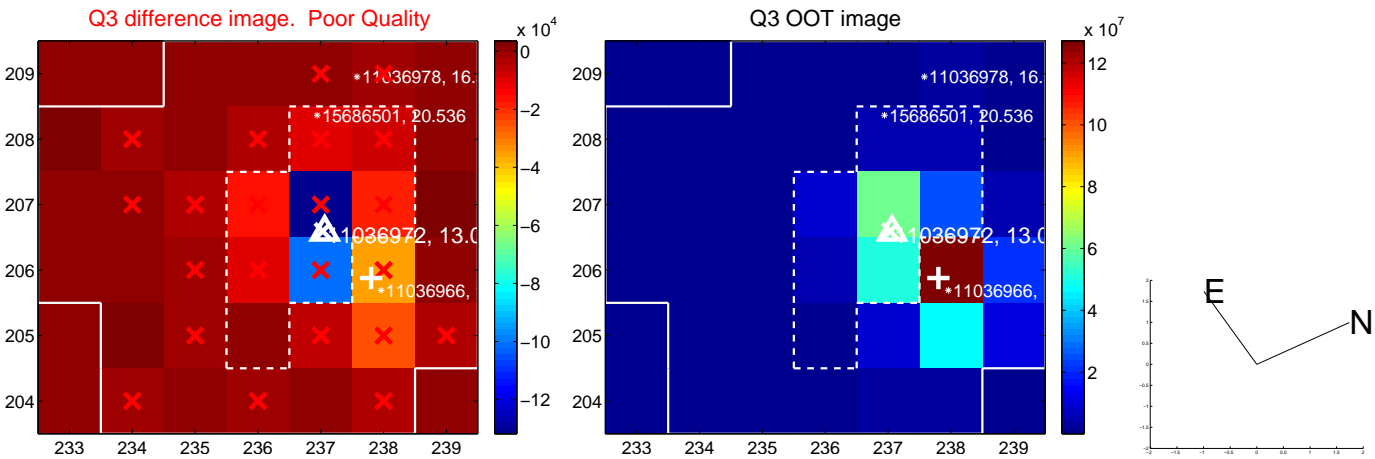
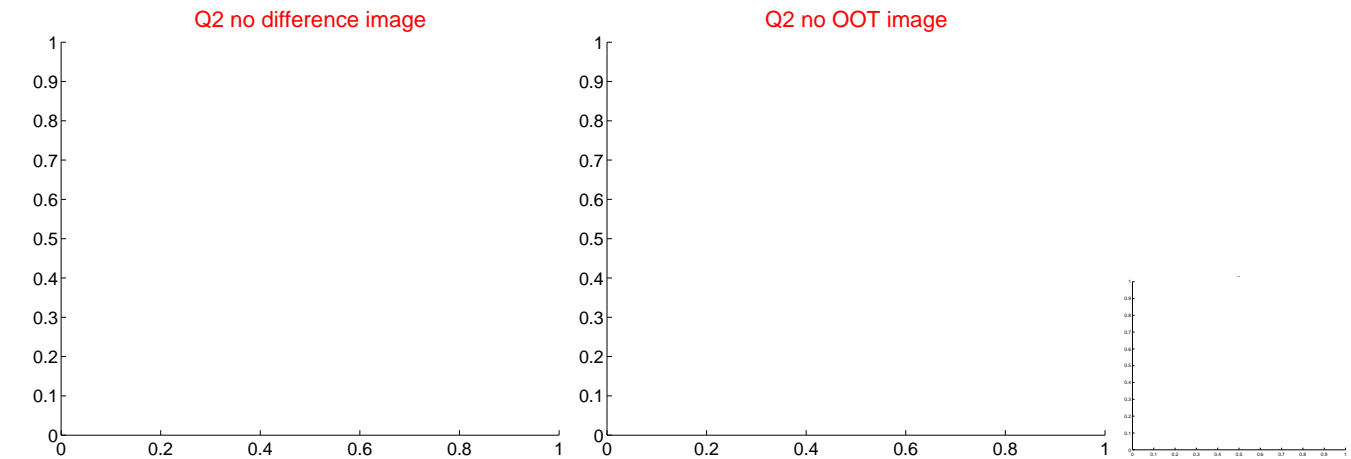
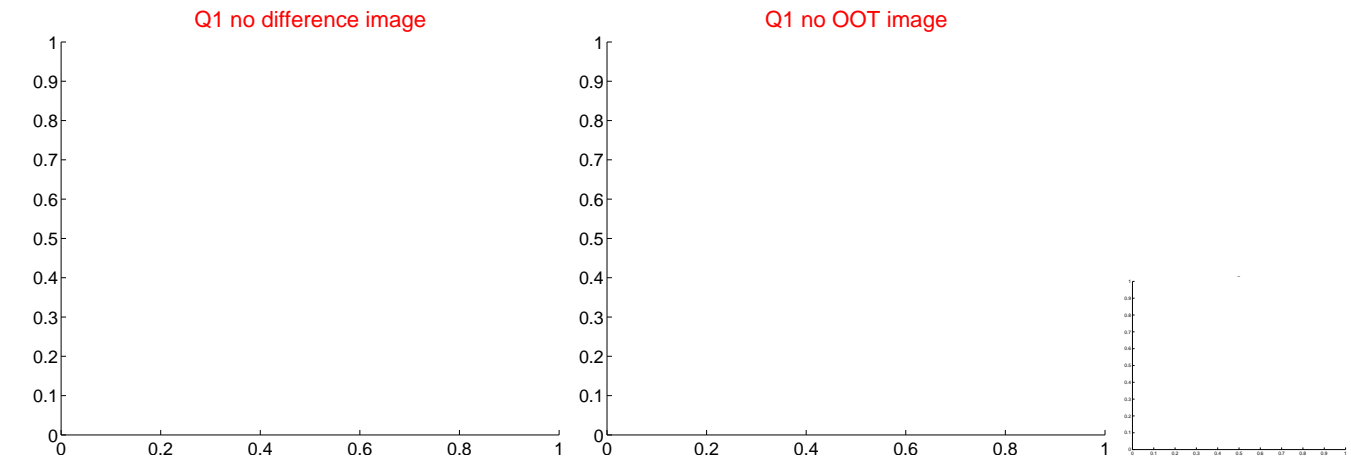
The OOT PRF centroid is offset from the target star catalog position by about 3.34 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$3.681 \pm 0.154$	<b>23.96</b>	$3.562 \pm 0.167$	$-0.927 \pm 0.165$
PRF-fit source offset from KIC position	$0.423 \pm 0.199$	2.13	$0.169 \pm 0.113$	$0.388 \pm 0.181$
photometric centroid source offset	$2.33 \pm 0.68$	<b>3.41</b>	$-2.15 \pm 0.73$	$0.90 \pm 0.26$

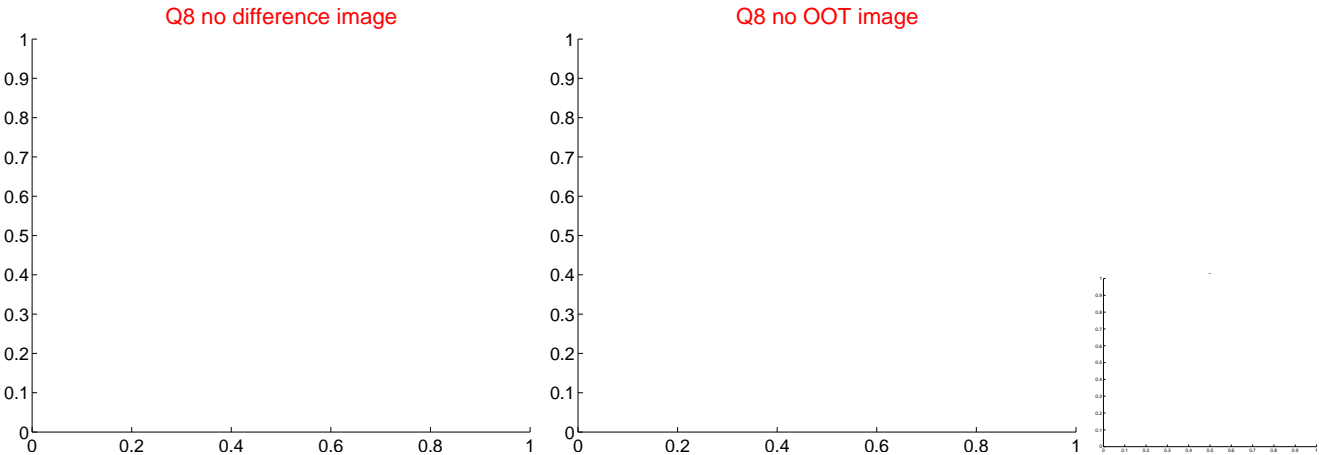
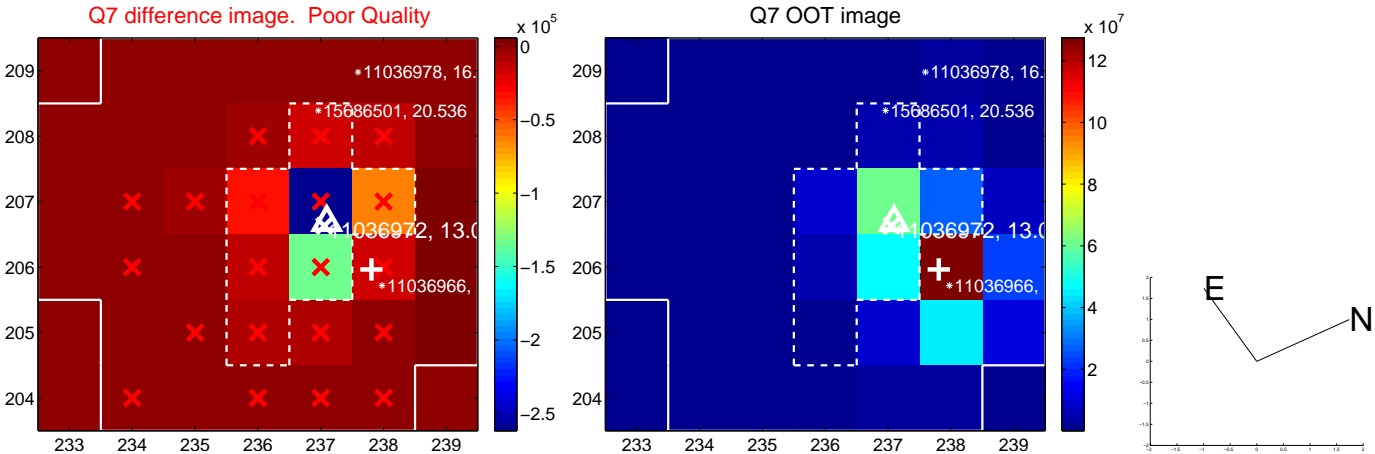
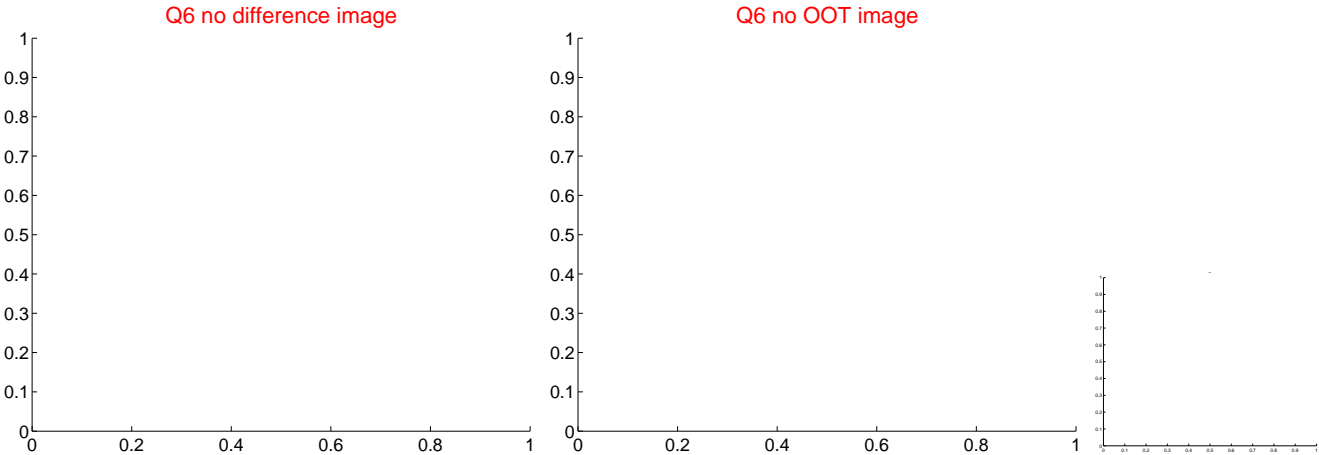
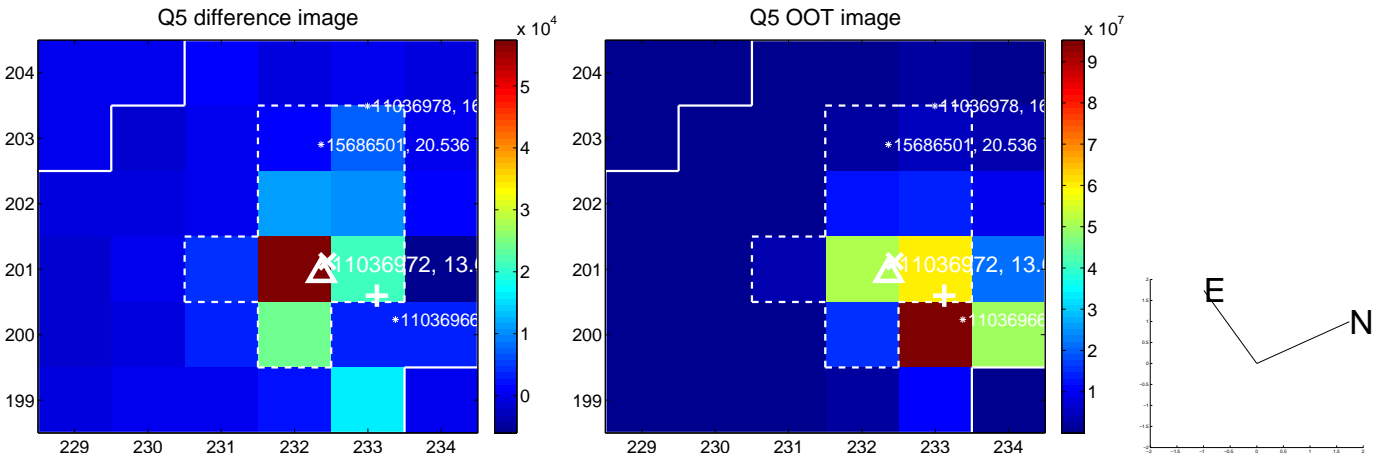


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

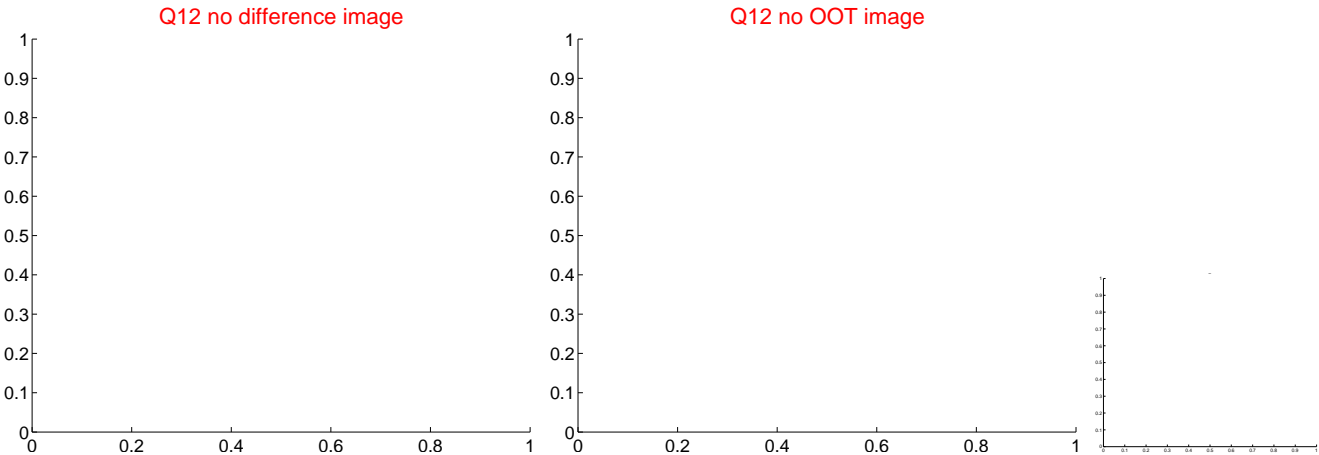
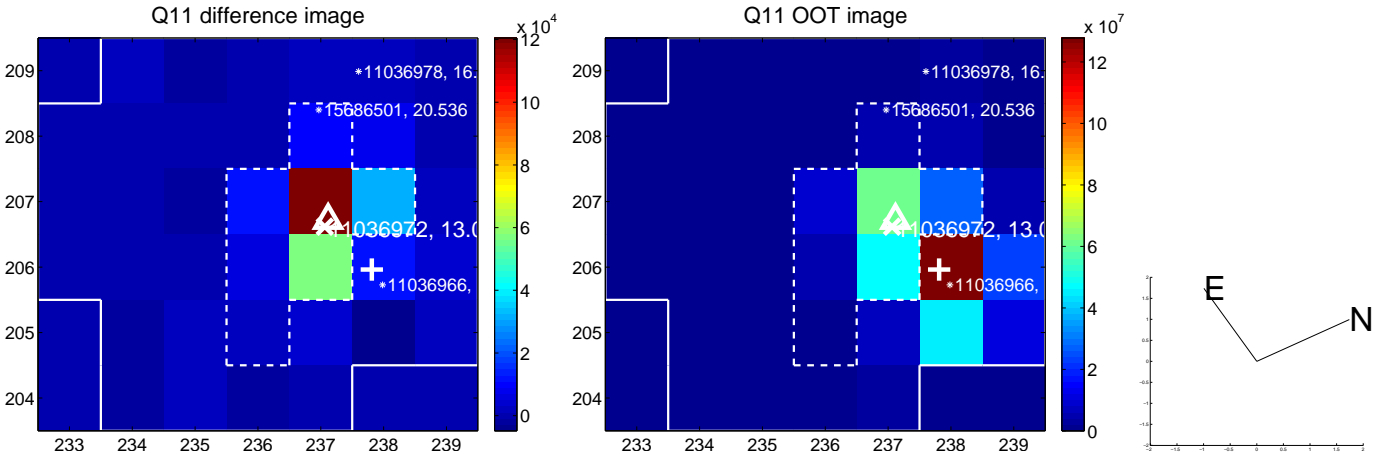
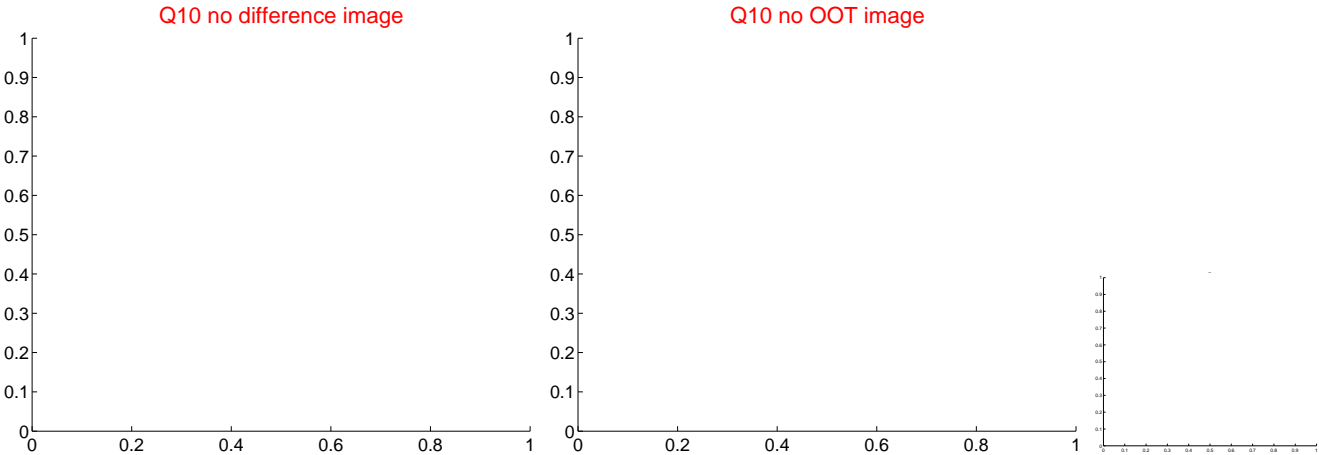
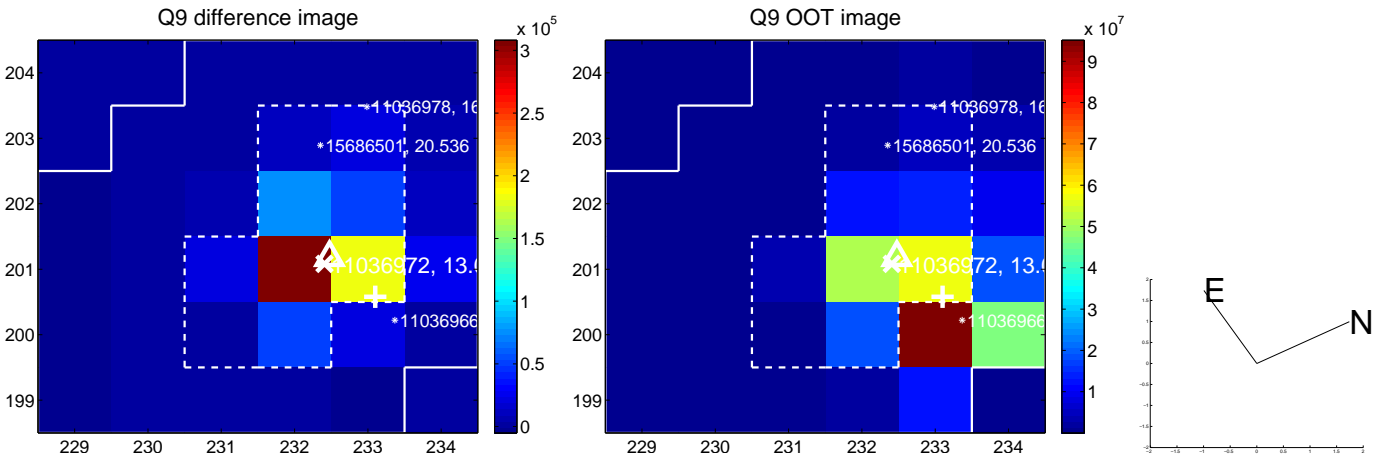
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

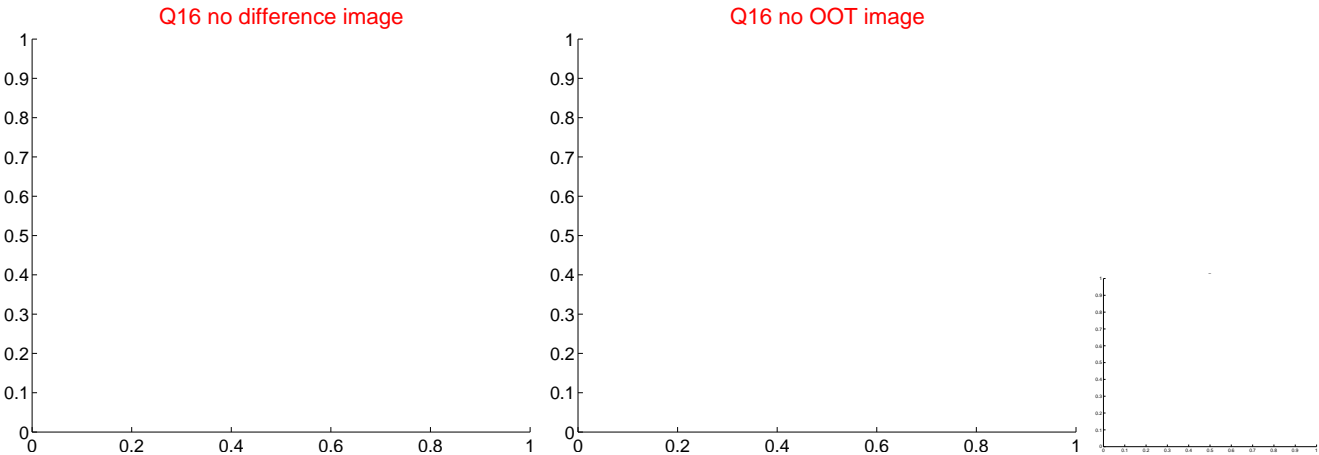
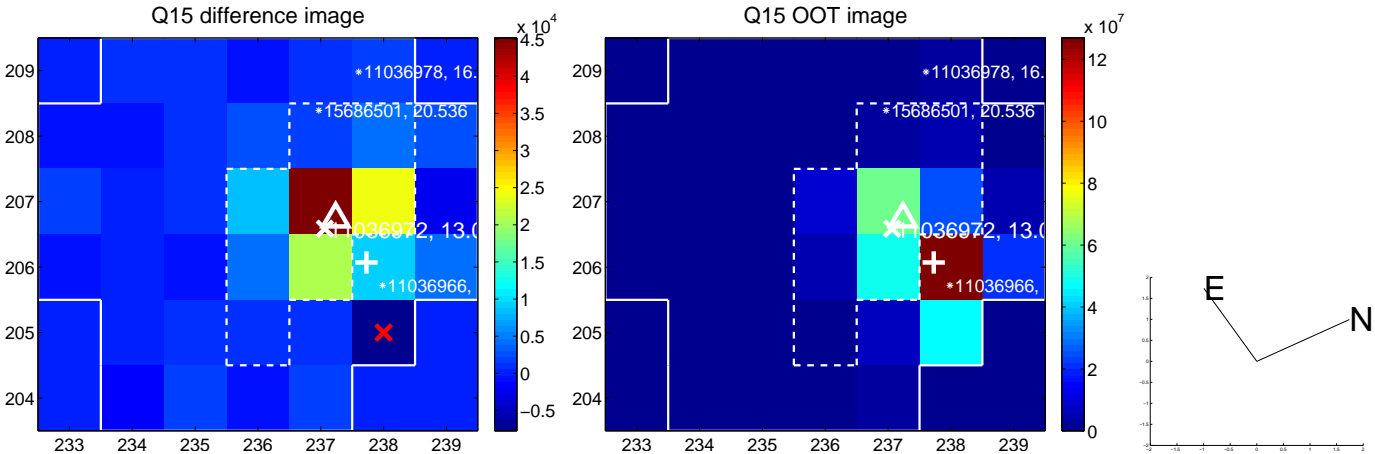
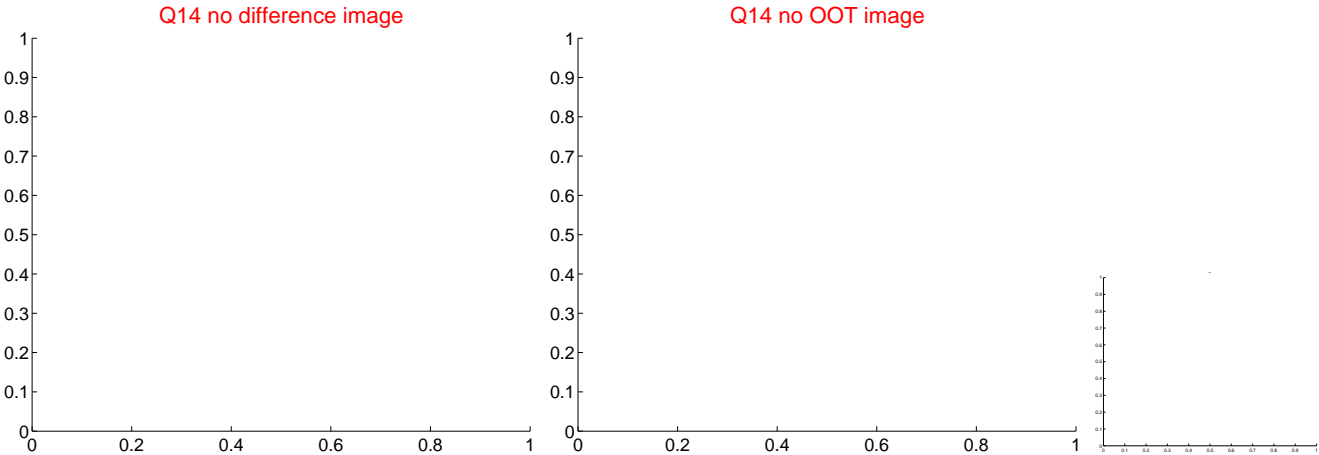
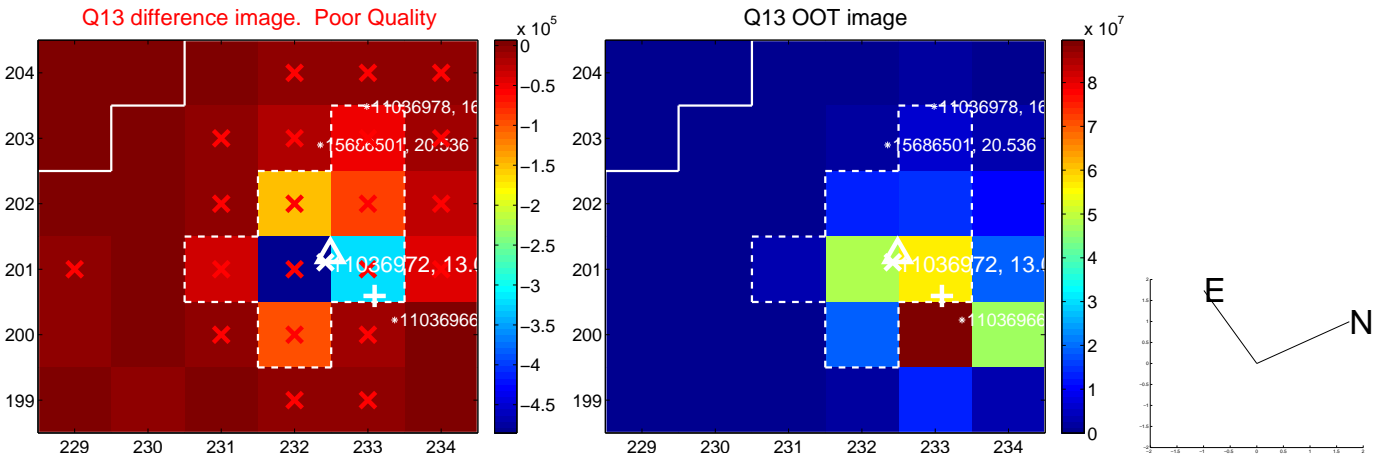


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

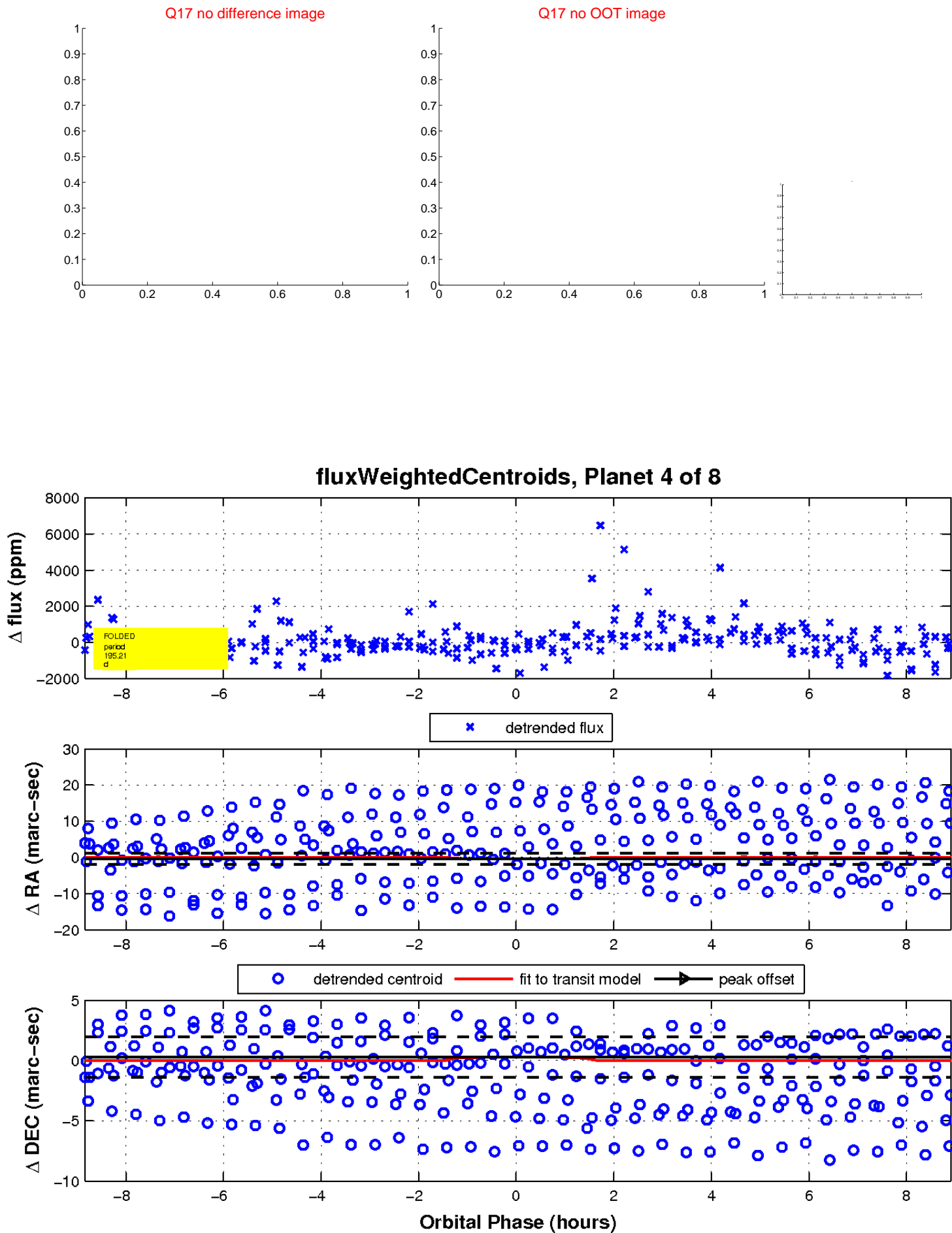




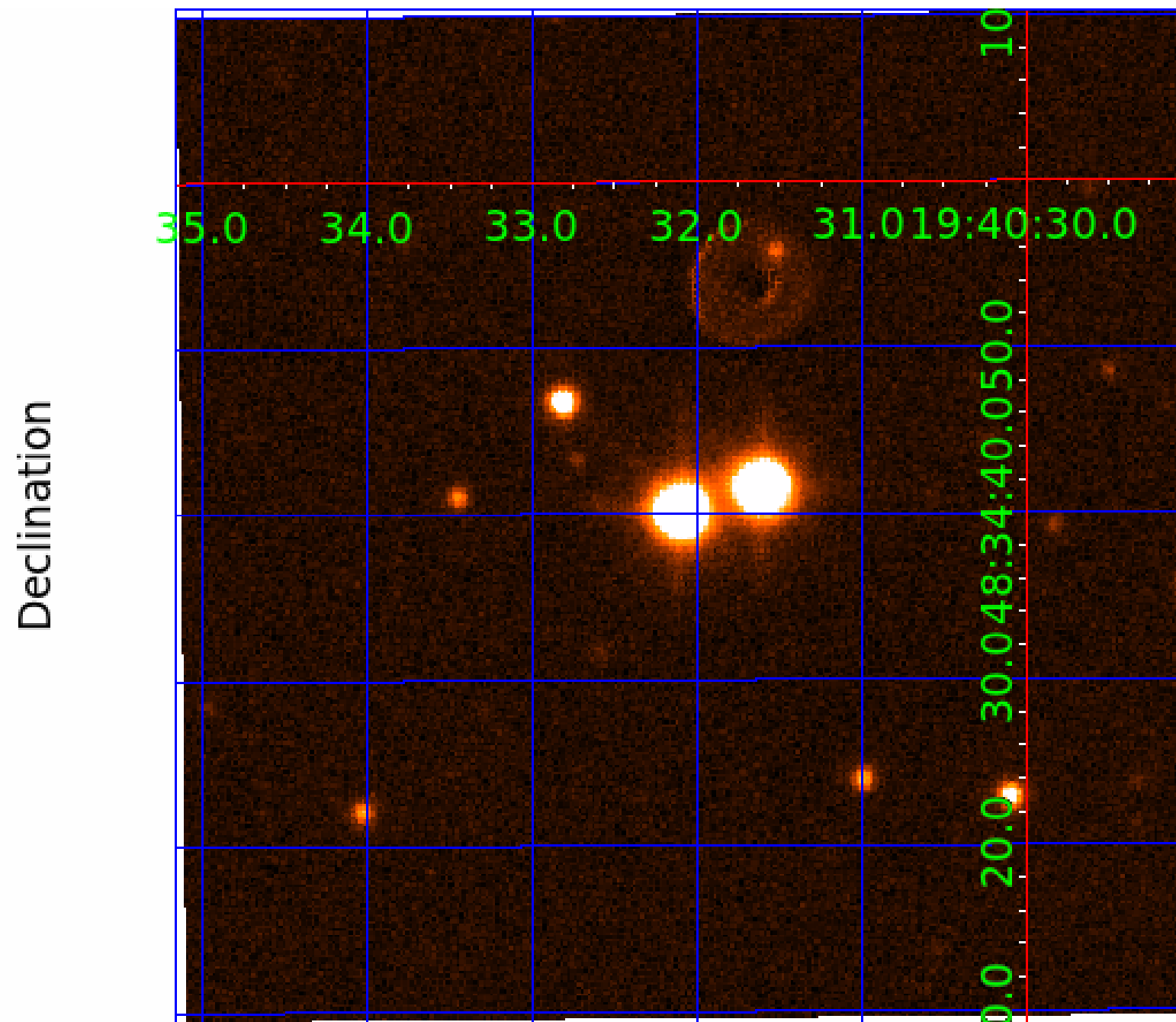
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image



# KIC 011036972

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011036972-01	OBS	No	1.020557	131.809893	71.6	3.740	15.7	7.5	2.98	4955	3.07	13217.17
011036972-02	OBS	No	429.246246	179.262160	1289.7	6.874	14.0	4.3	2.98	4955	10.40	4.19
011036972-03	OBS	No	211.151208	165.355494	7.9	1.293	13.4	0.1	2.98	4955	0.98	10.80
011036972-04	OBS	No	195.212733	272.157520	1557.8	3.014	12.2	7.2	2.98	4955	11.57	11.99
011036972-05	OBS	No	218.996531	188.473447	2128.3	16.978	10.6	5.3	2.98	4955	16.93	10.29
011036972-06	OBS	No	213.271097	204.974825	807.5	4.853	11.3	3.9	2.98	4955	8.26	10.66
011036972-07	OBS	No	74.943778	202.204954	1102.9	15.979	9.6	5.8	2.98	4955	9.70	42.98
011036972-08	OBS	No	178.823053	210.737521	1175.6	5.577	11.6	5.7	2.98	4955	10.79	13.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011036972-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
011036972-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
011036972-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
011036972-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
011036972-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS—HALO_GHOST
011036972-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_KIC_POS
011036972-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS—HALO_GHOST
011036972-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_NOFITS— HALO_GHOST

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

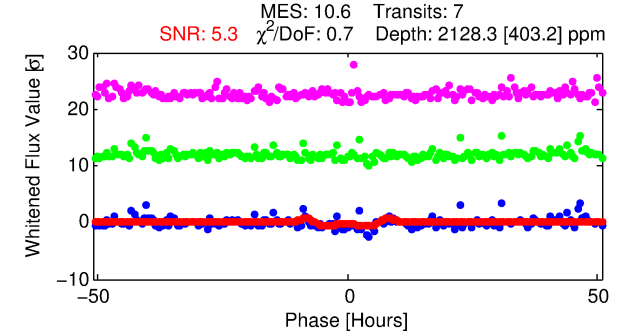
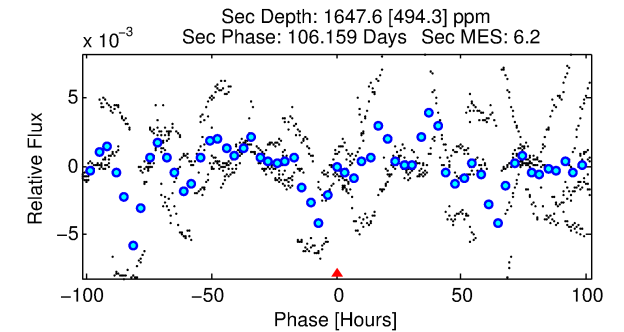
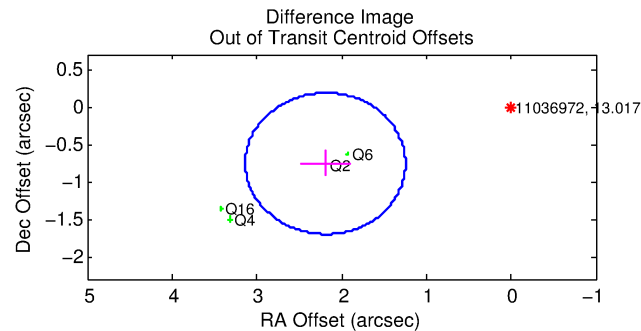
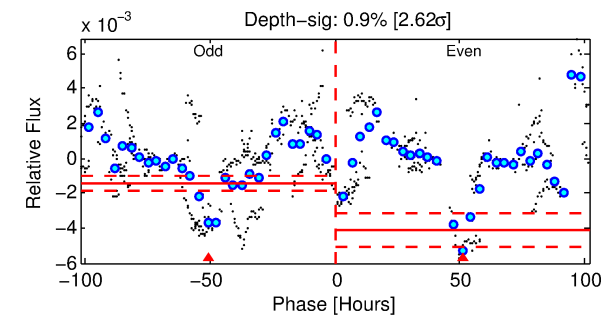
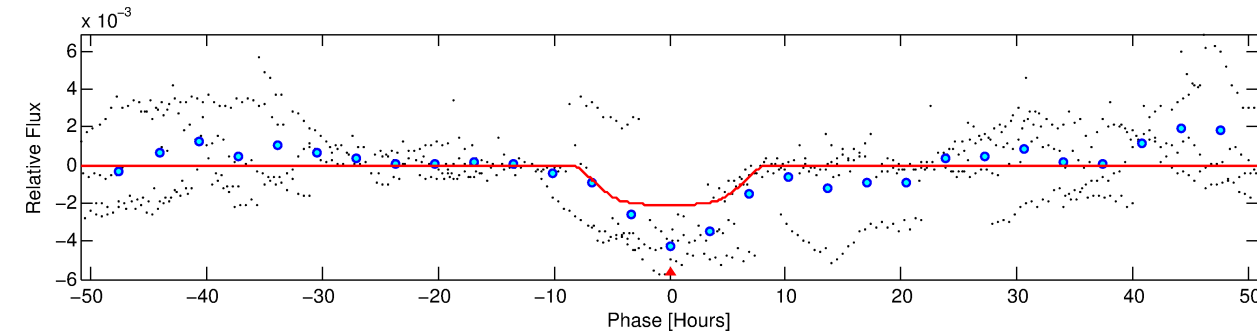
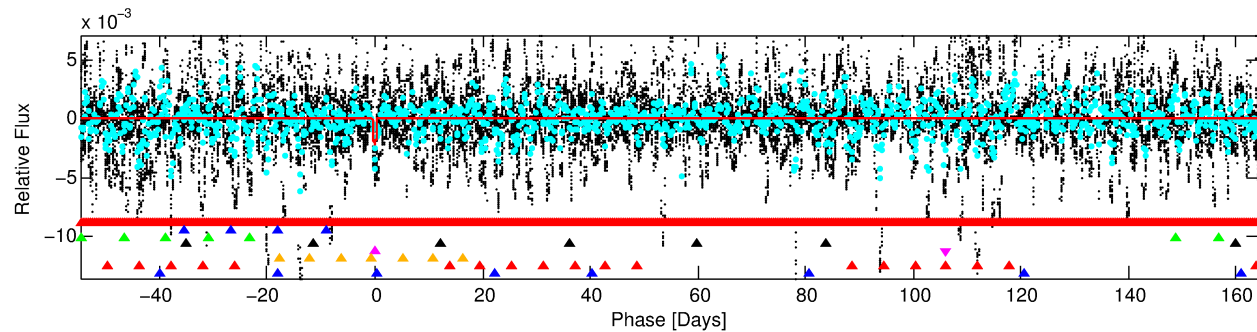
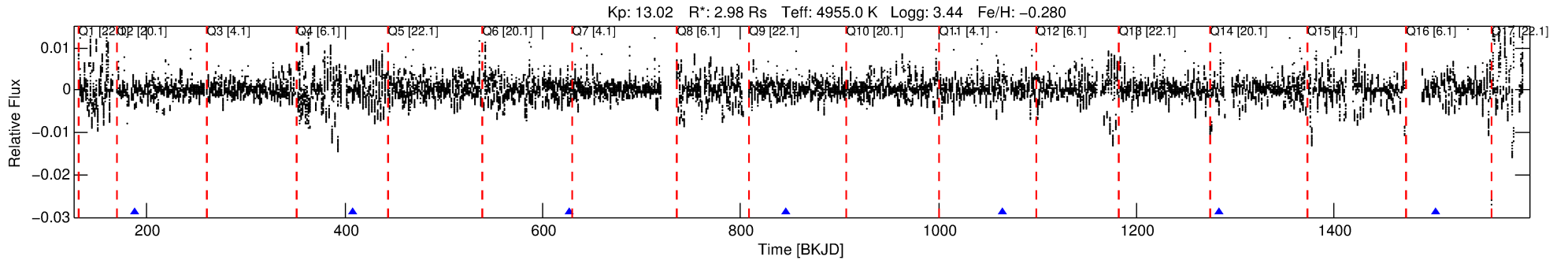
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011036972-05

No Significant Match Found

# DV One-Page Summary

KIC: 11036972 Candidate: 5 of 8 Period: 218.997 d



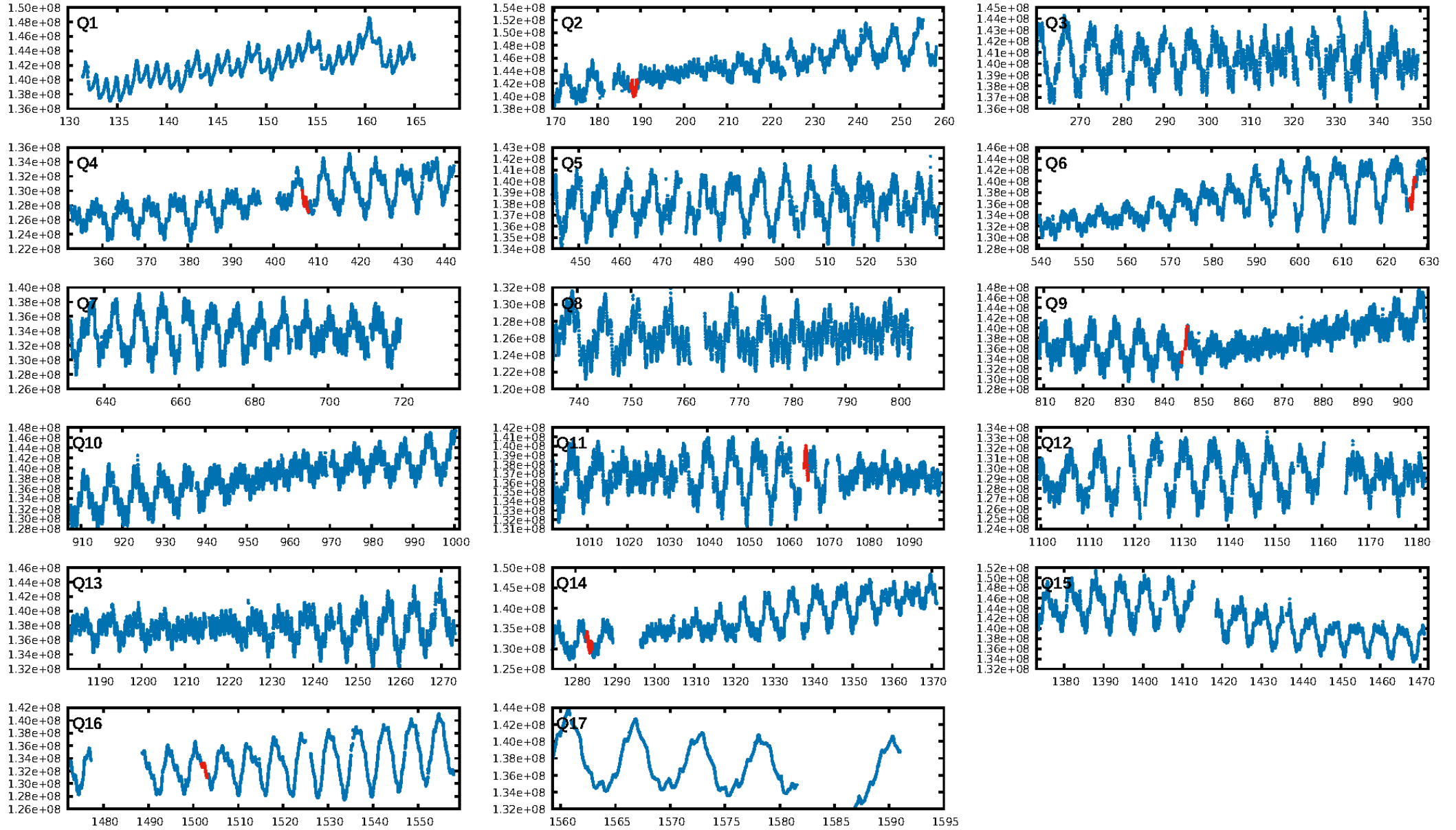
## DV Fit Results:

Period = 218.99653 [0.00550] d  
Epoch = 188.4734 [0.0221] BKJD  
Rp/R\* = 0.0521 [0.0051]  
a/R\* = 52.03 [4.35]  
b = 0.91 [0.02]  
Seff = 10.29 [6.16]  
Teq = 457 [68] K  
Rp = 16.93 [9.46] Re  
a = 0.6821 [0.2954] AU  
Ag = 1471.69 [1014.94] [1.45 $\sigma$ ]  
Teffp = 4373 [411] K [9.40 $\sigma$ ]

## DV Diagnostic Results:

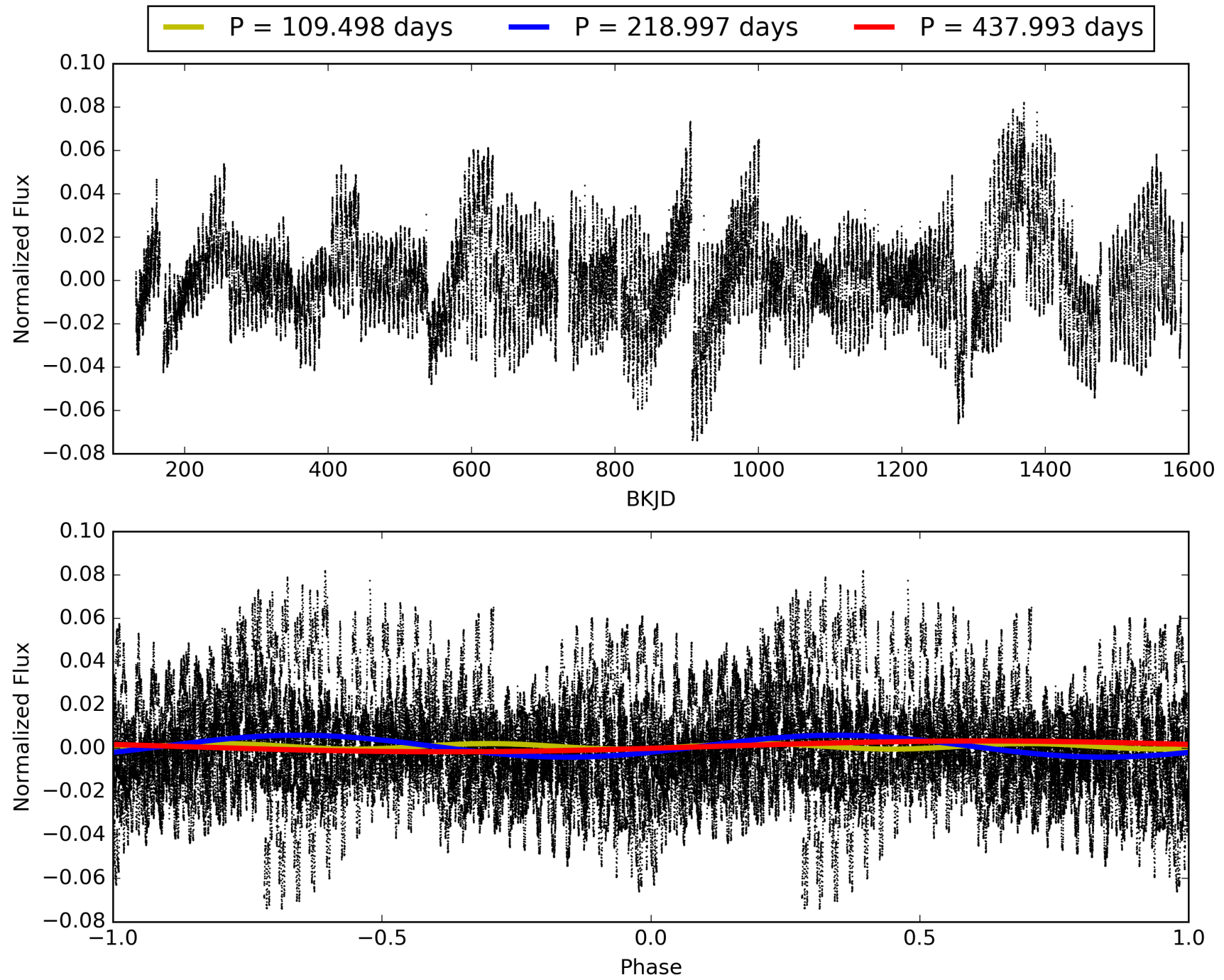
ShortPeriod-sig: 100.0% [7.78 $\sigma$ ]  
LongPeriod-sig: 100.0% [275.48 $\sigma$ ]  
ModelChiSquare2-sig: 8.3%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [7/7]  
GhostDiagnostic-chr: -0.1506  
Centroid-sig: 1.6%  
Centroid-so: 2.016 arcsec [1.85 $\sigma$ ]  
OotOffset-rm: 2.318 arcsec [7.37 $\sigma$ ]  
KicOffset-rm: 0.249 arcsec [2.16 $\sigma$ ]  
OotOffset-st: 2/0/2/0 [4]  
KicOffset-st: 2/0/2/0 [4]  
DiffImageQuality-fgm: 0.75 [3/4]  
DiffImageOverlap-fno: 0.00 [0/4]

# TCE 011036972-05, PDC Light Curves



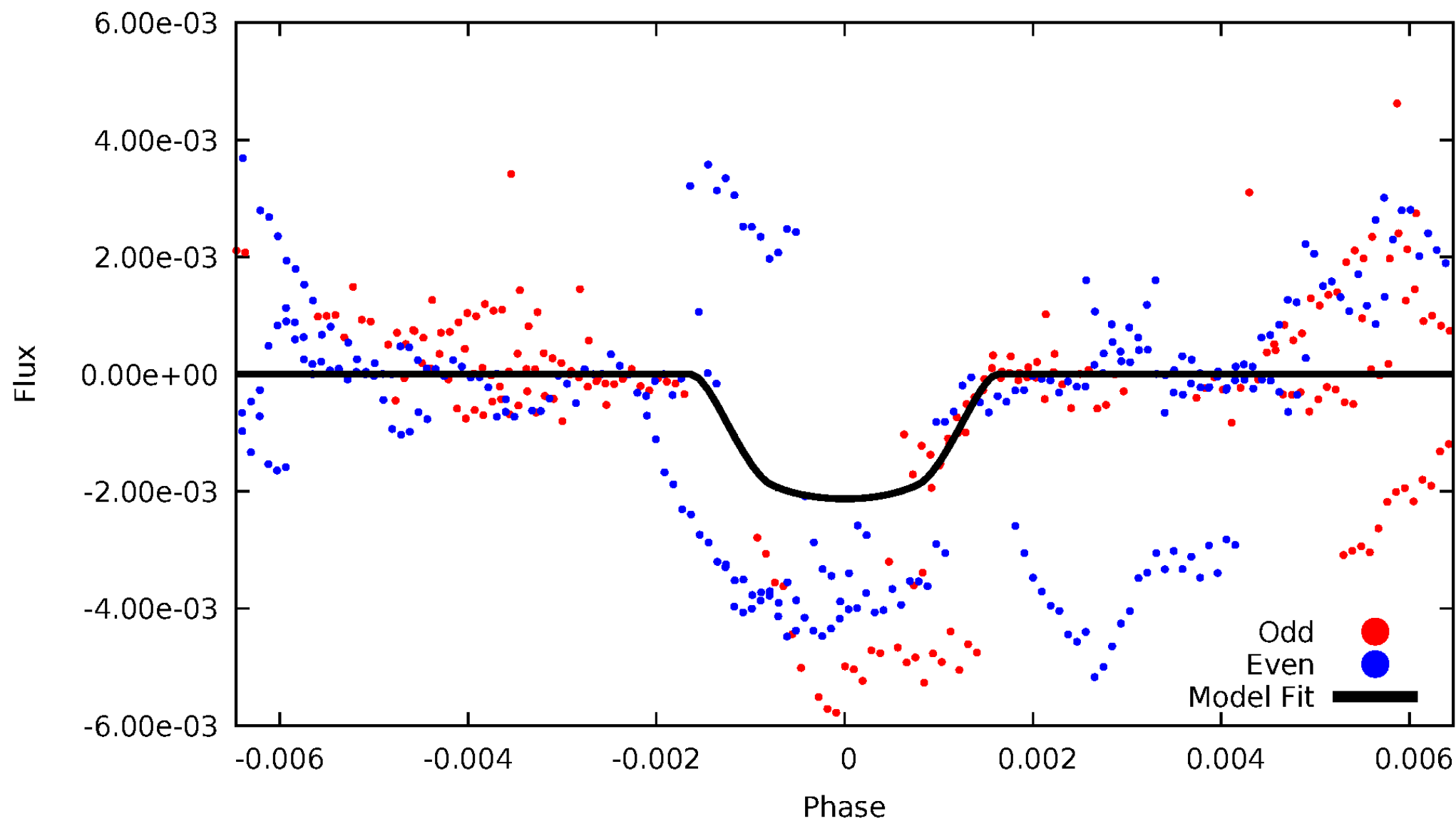


TCE 011036972-05



# DV Odd/Even

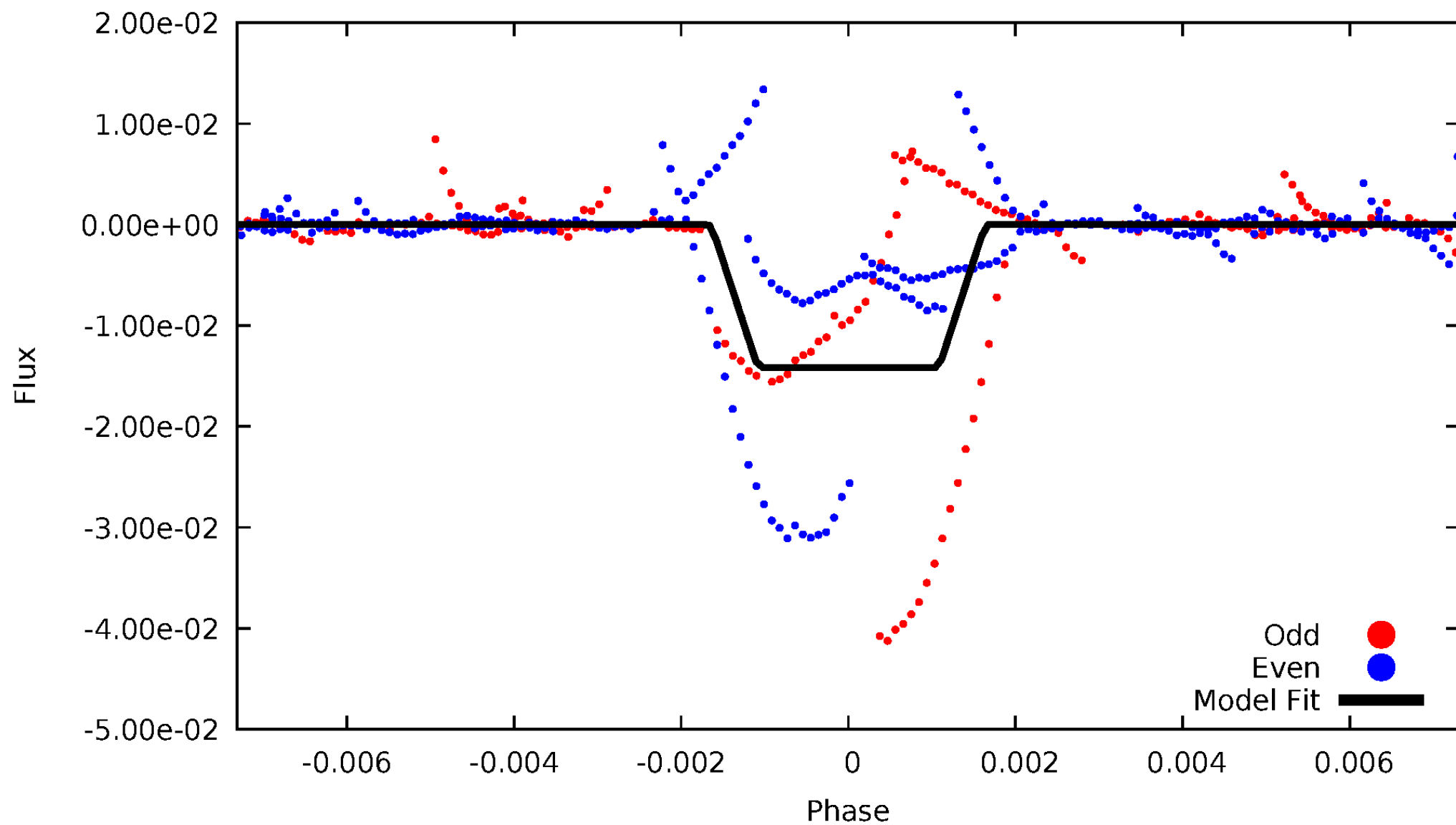
TCE 011036972-05





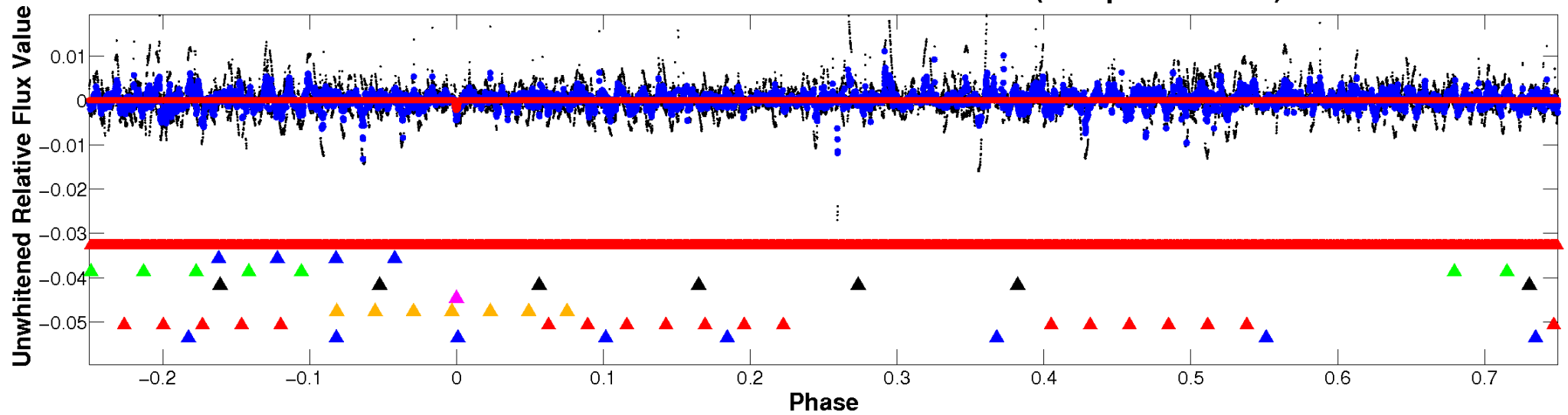
# ALT Odd/Even

TCE 011036972-05

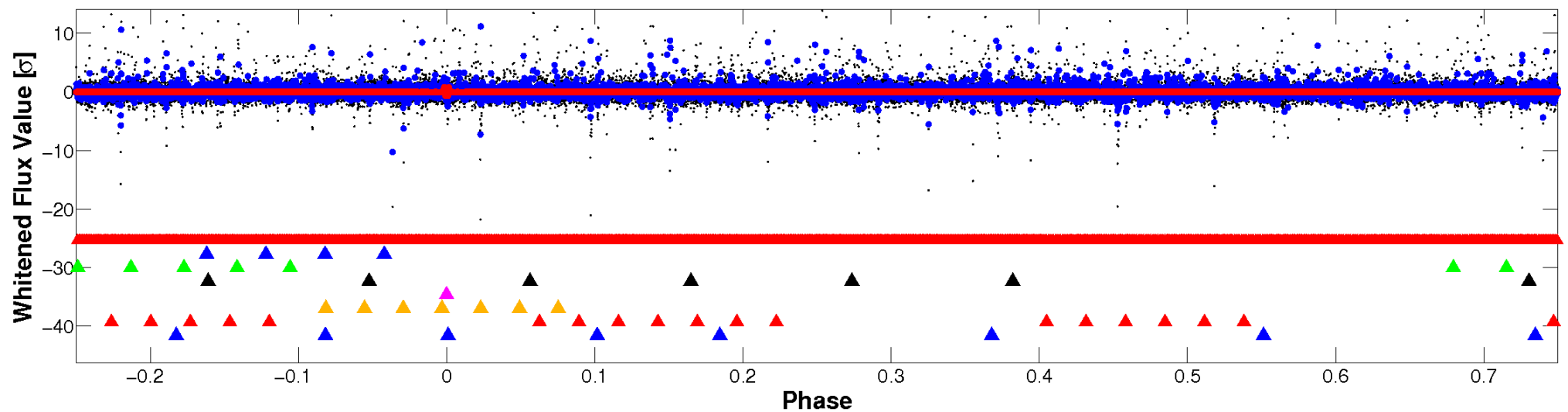


# Non-Whitened Vs. Whitened Light Curve

Planet 5 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

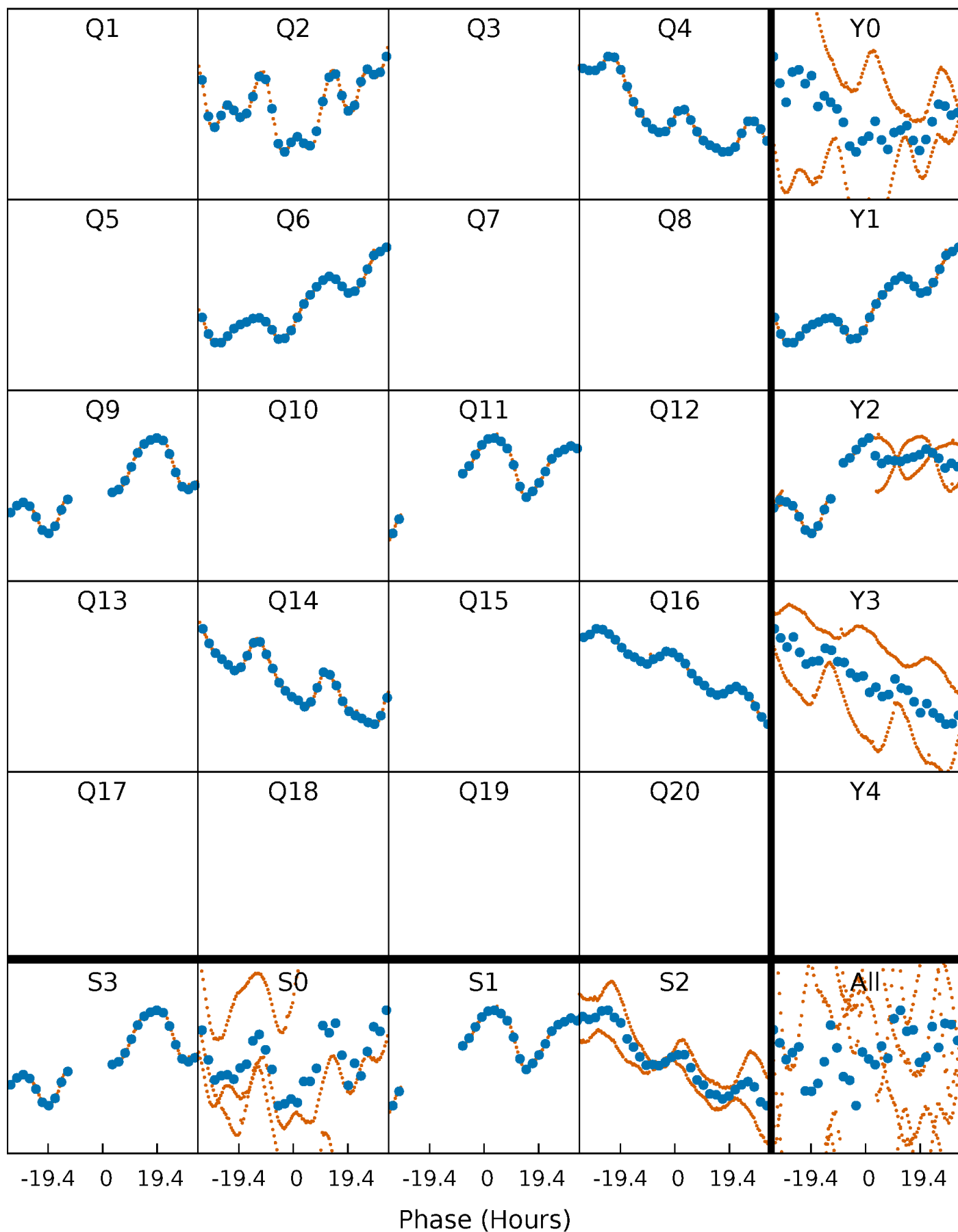


Planet 5 : Phased Whitened Flux Time Series (Fit Epoch/Period)



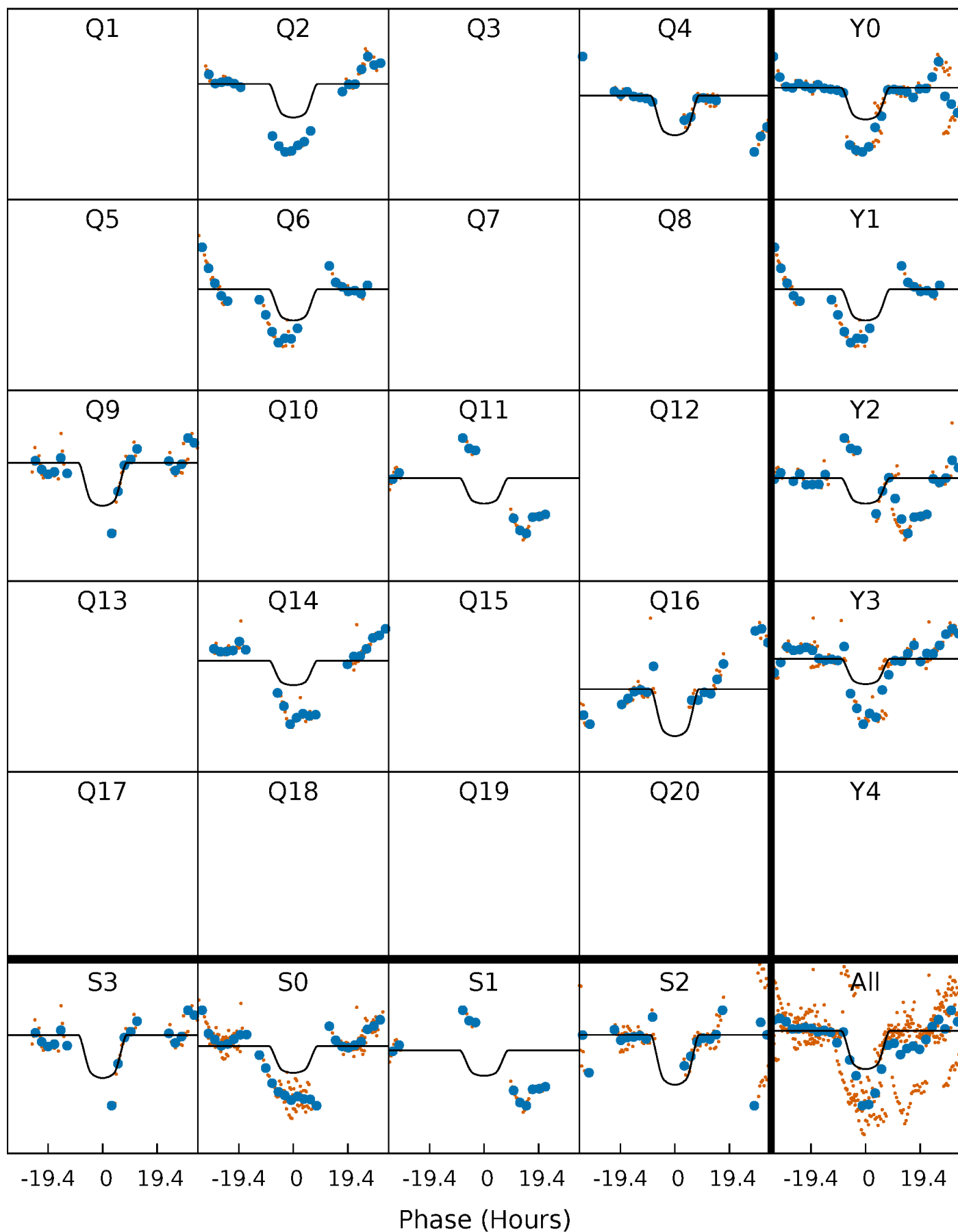
# PDC Quarter-Phased Transit Curves

TCE 011036972-05     $P=218.996532$  Days     $T_0=188.473447$  (BKJD)



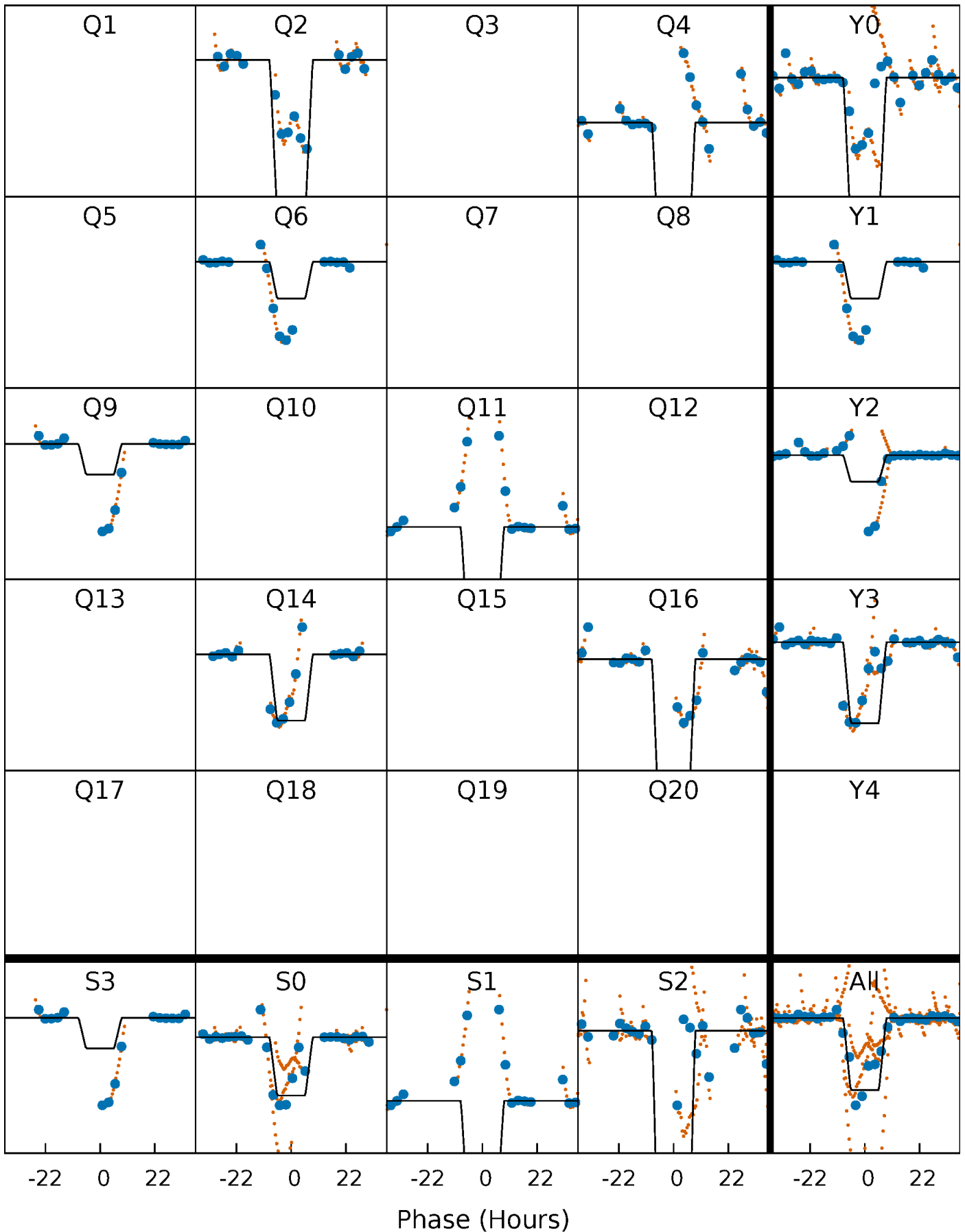
# DV Quarter-Phased Transit Curves

TCE 011036972-05     $P=218.996532$  Days     $T_0=188.473447$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

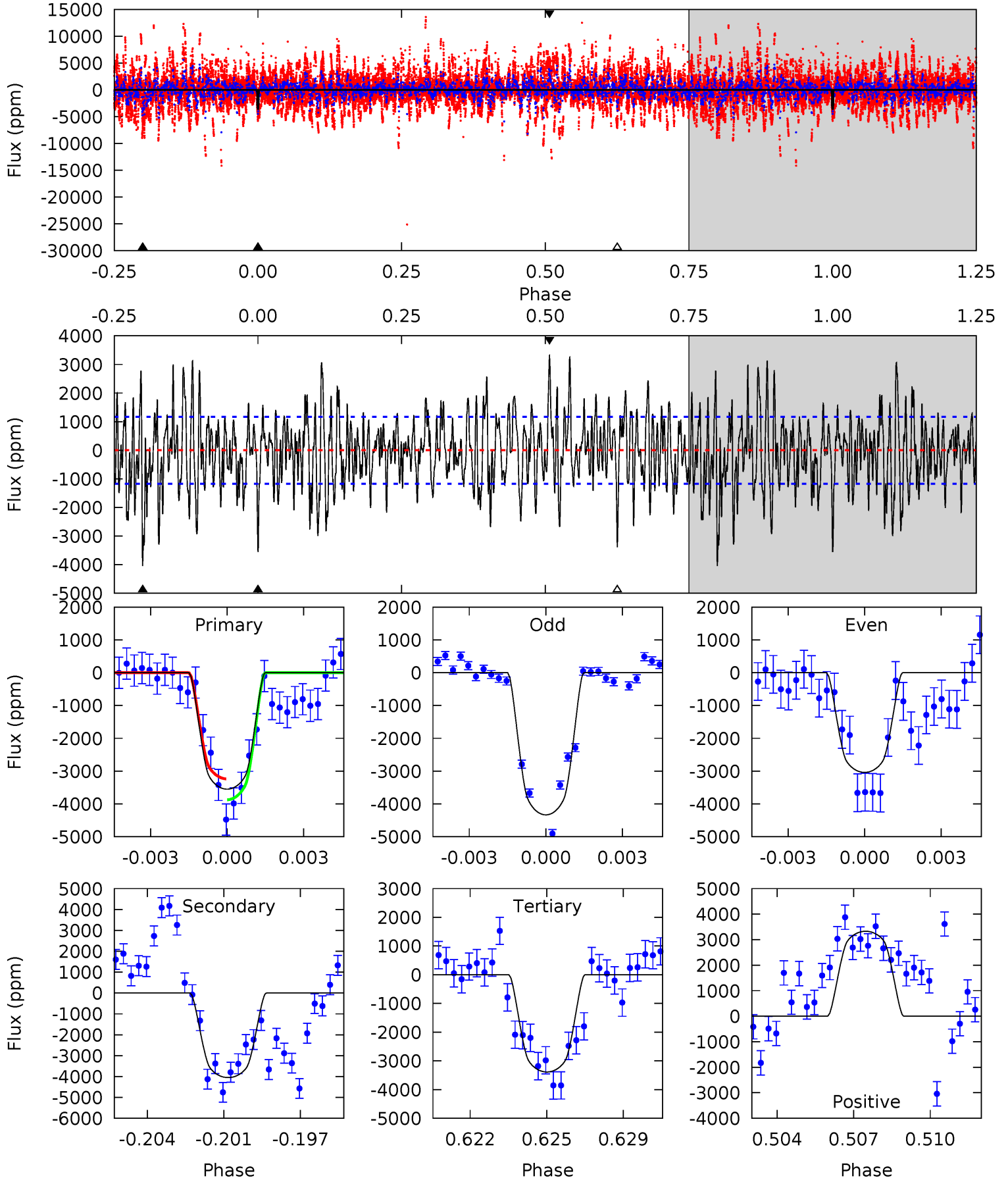
TCE 011036972-05 P=219.027330 Days  $T_0=188.459440$  (BKJD)



# DV Model-Shift Uniqueness Test

011036972-05, P = 218.996532 Days, E = 188.473447 Days

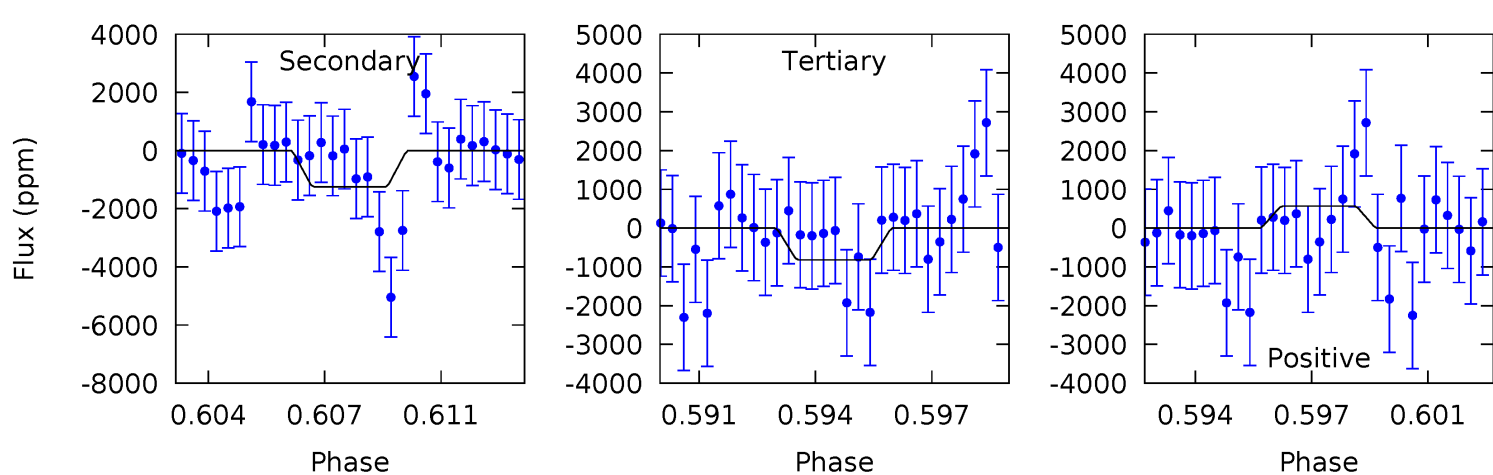
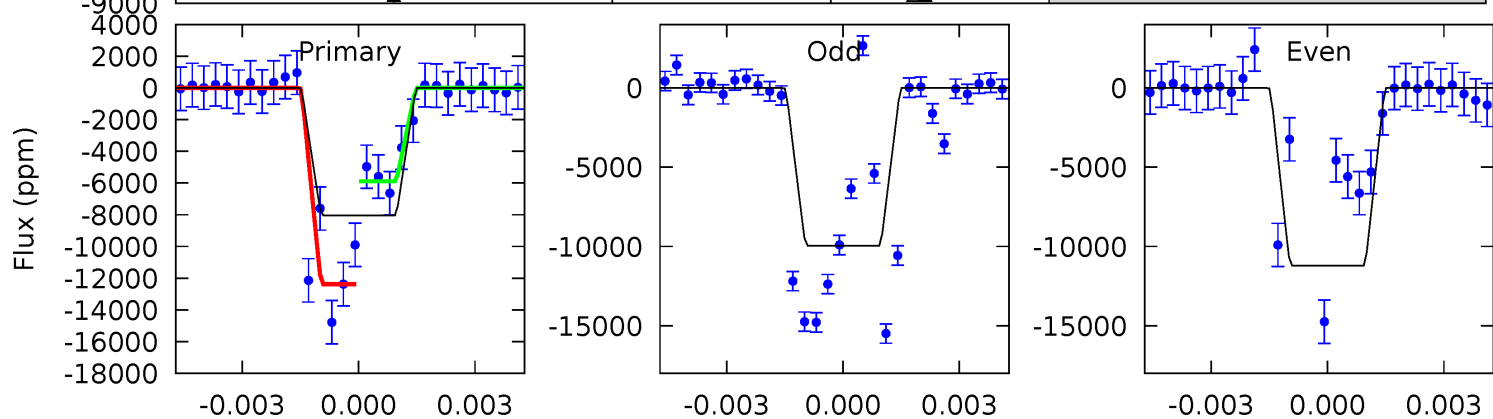
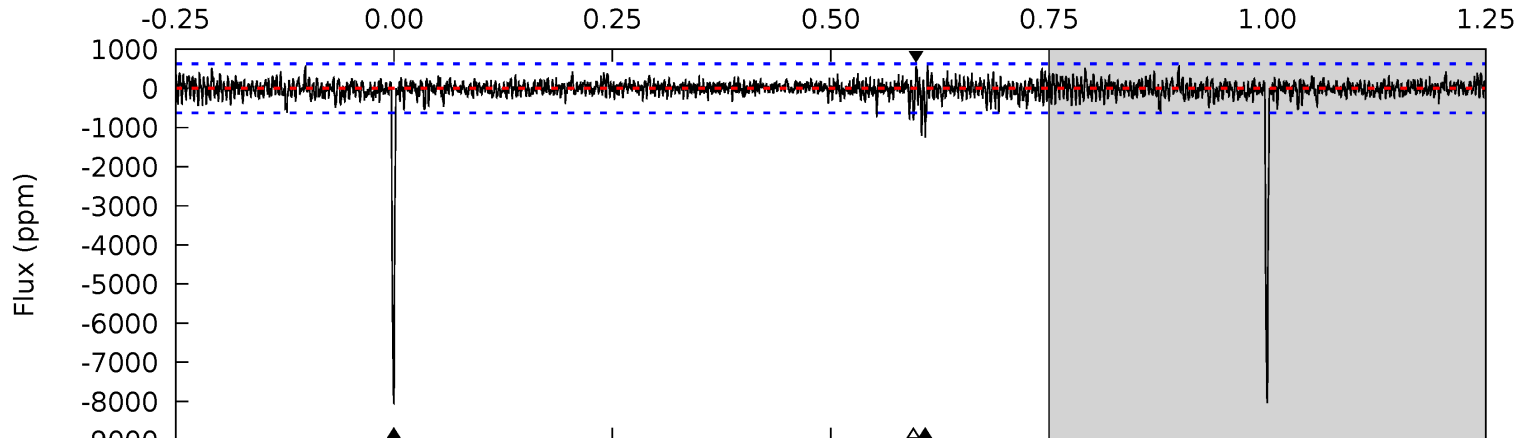
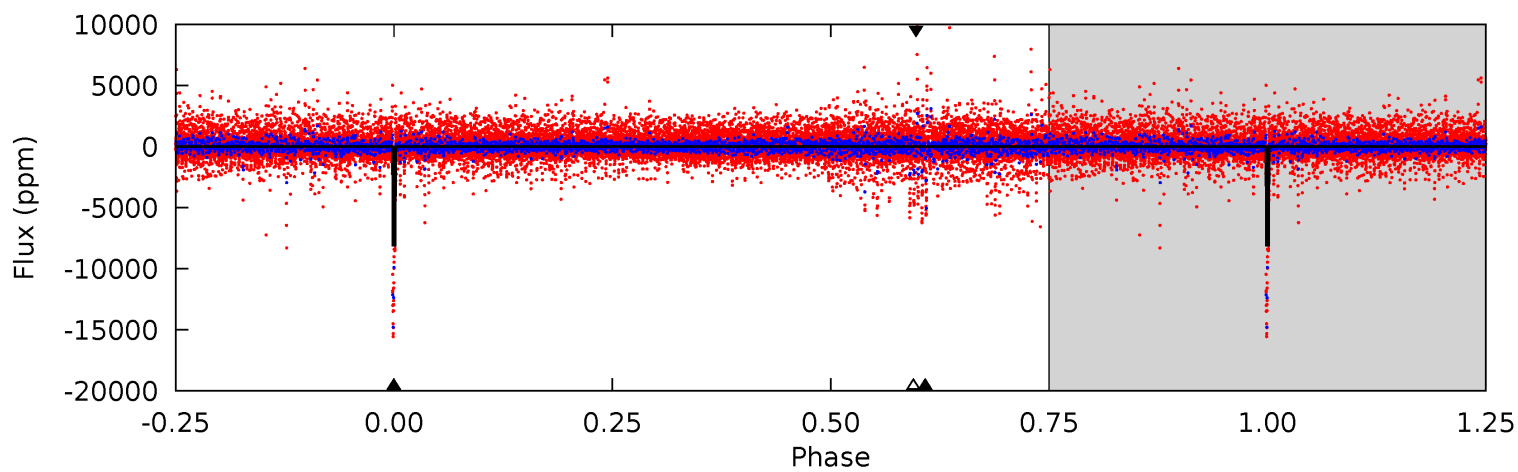
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.9	18.1	15.1	14.9	5.24	2.94	4.84	0.73	0.99	2.96	3.22	2.57	0.75	0.45	1.40



# Alt Model-Shift Uniqueness Test

011036972-05, P = 219.027330 Days, E = 188.459440 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
67.1	10.4	6.82	4.74	5.23	2.93	1.28	60.3	62.4	3.55	5.63	4.10	1.50	0.07	25.2



### Stellar Parameters For KIC 011036972

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4955^{+137}_{-1}$	$3.436^{+0.300}_{-0.300}$	$-0.280^{+0.300}_{-0.200}$	$2.977^{+1.638}_{-0.882}$	$0.882^{+0.290}_{-0.134}$	$0.047^{+0.088}_{-0.030}$
	+3%/-0%	+9%/-9%	+107%/-71%	+55%/-30%	+33%/-15%	+186%/-64%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 011036972-05 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-4050 \pm 224$	$17.28^{+5.03}_{-3.78}$	$636^{+80}_{-65}$	$5383^{+328}_{-308}$	$3523^{+2147}_{-1334}$
Alt.	$-1243 \pm 120$	$38.28^{+11.75}_{-7.11}$	$628^{+76}_{-60}$	$3218^{+96}_{-104}$	$222^{+104}_{-86}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )

$A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$



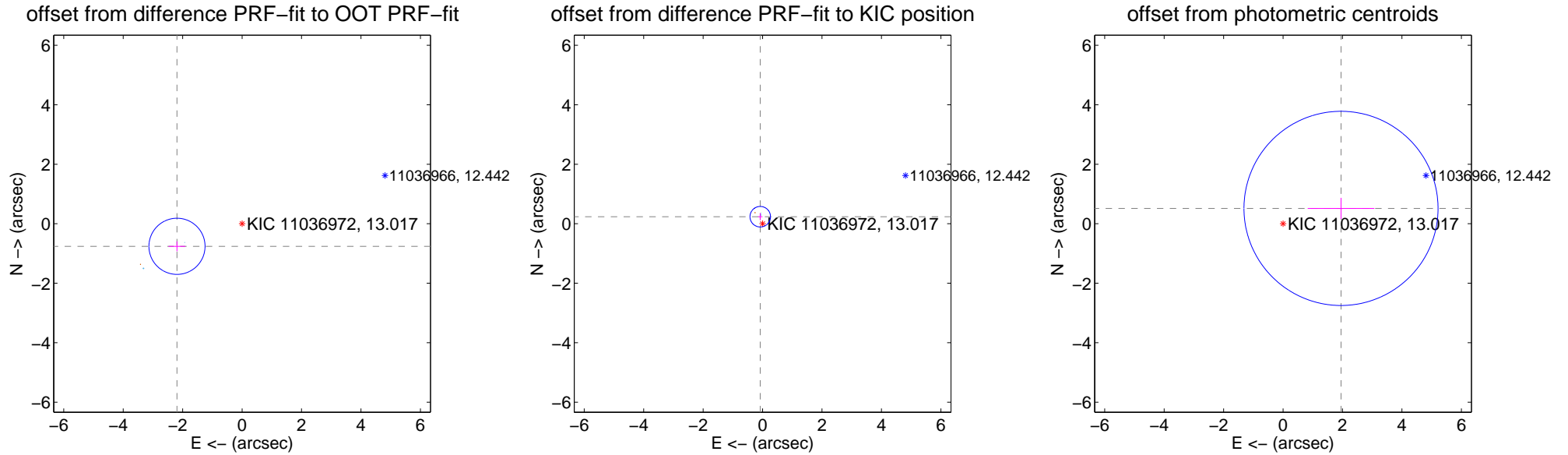
## DV Centroid Data

Supplemental centroid analysis for 011036972-05. Kepler magnitude: 13.02. Transit SNR 5.34

There are 3 quarters with good PRF difference image offsets

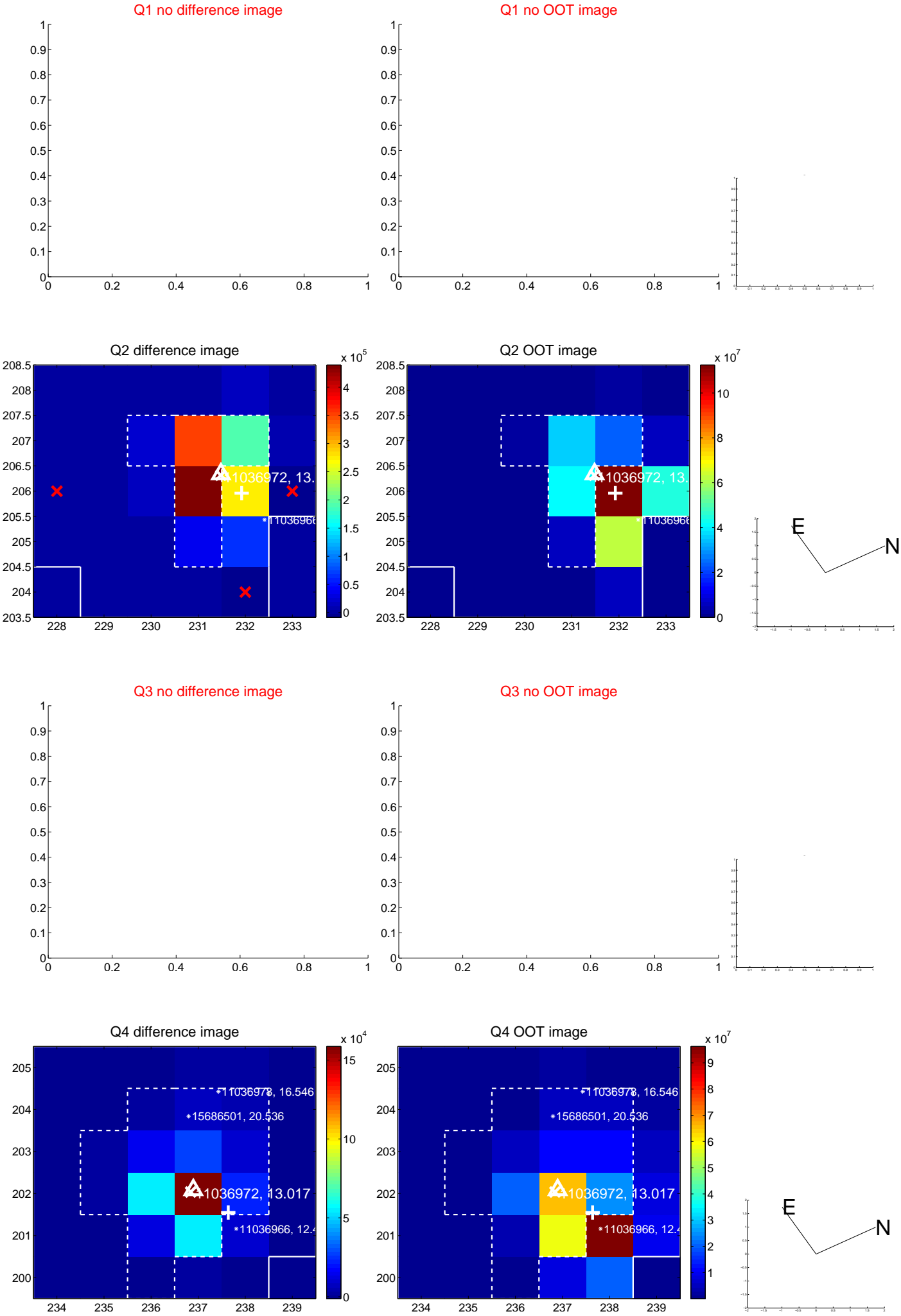
The OOT PRF centroid is offset from the target star catalog position by about 3.61 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.318 \pm 0.315$	$7.37$	$2.190 \pm 0.283$	$-0.759 \pm 0.165$
PRF-fit source offset from KIC position	$0.249 \pm 0.115$	$2.16$	$0.078 \pm 0.074$	$0.236 \pm 0.119$
photometric centroid source offset	$2.02 \pm 1.09$	$1.85$	$-1.95 \pm 1.12$	$0.52 \pm 0.36$

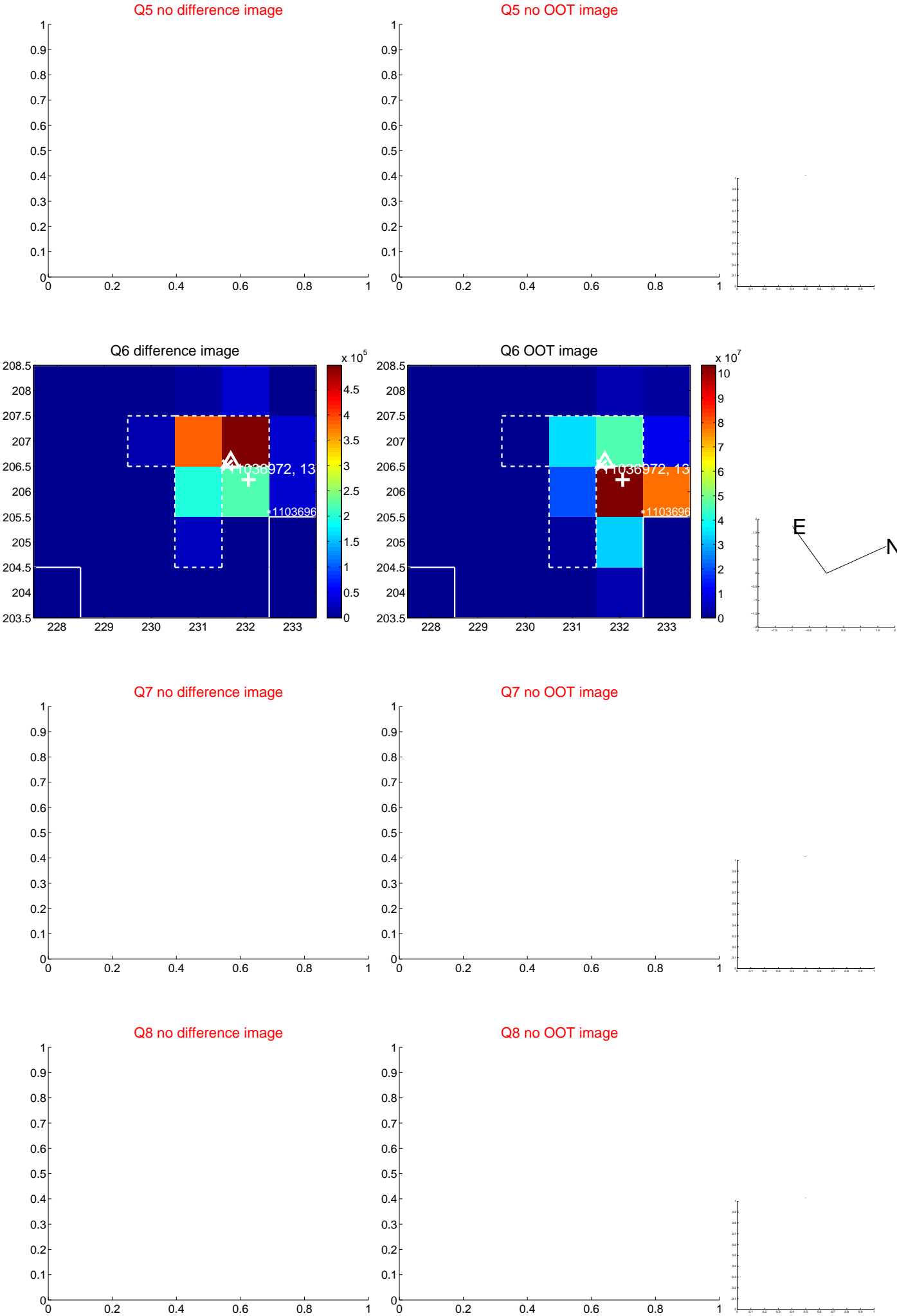


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



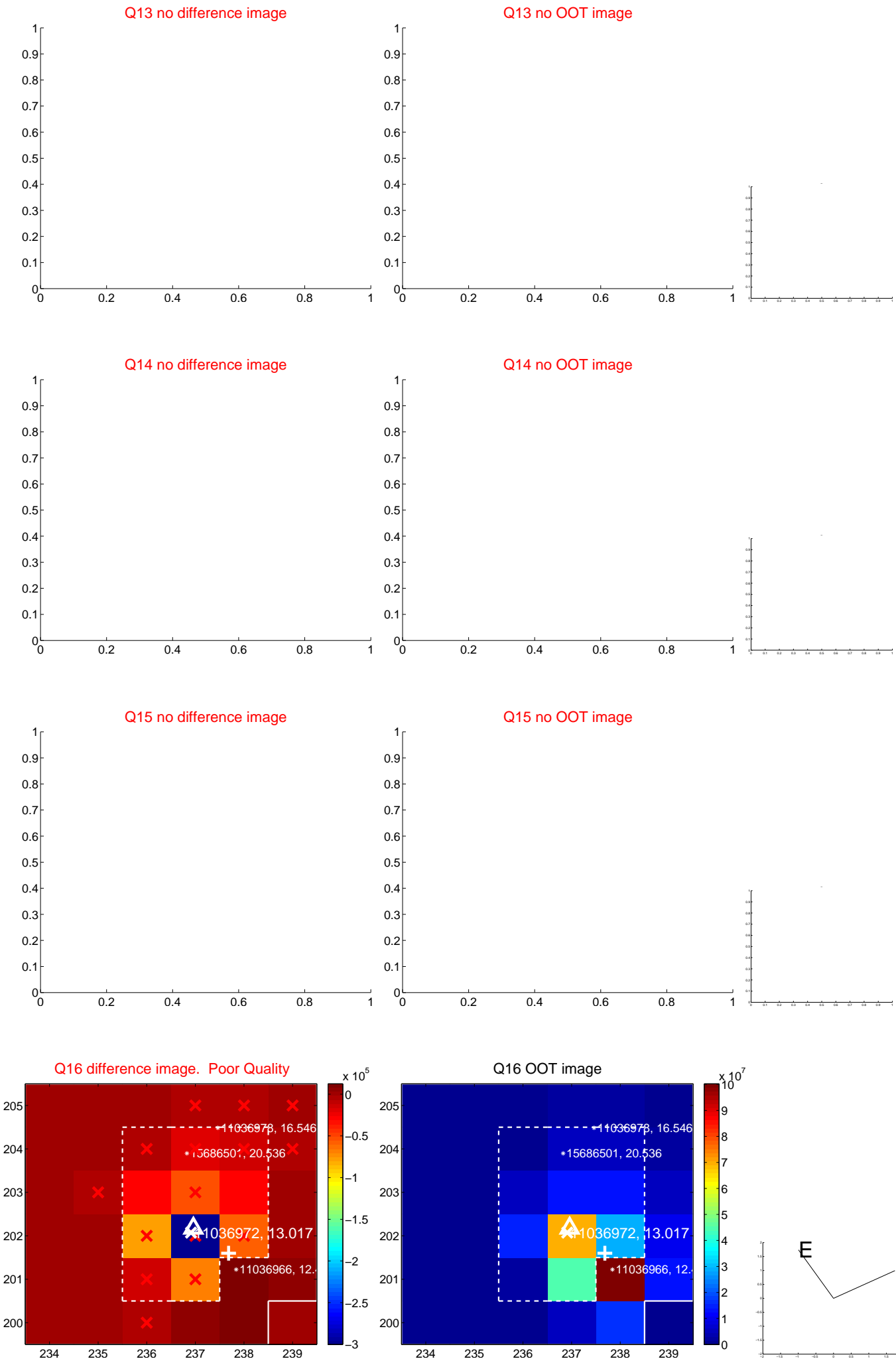
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



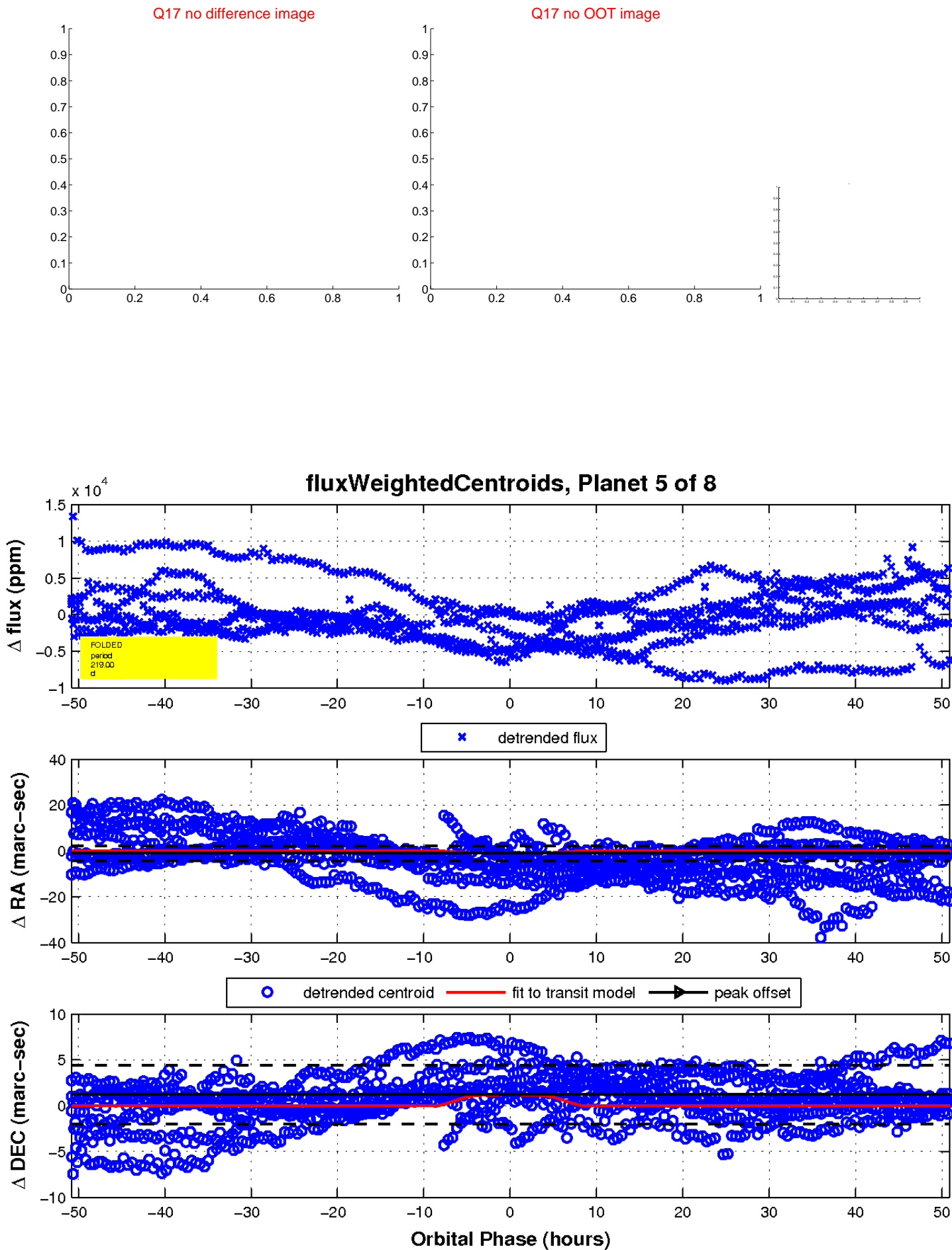
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

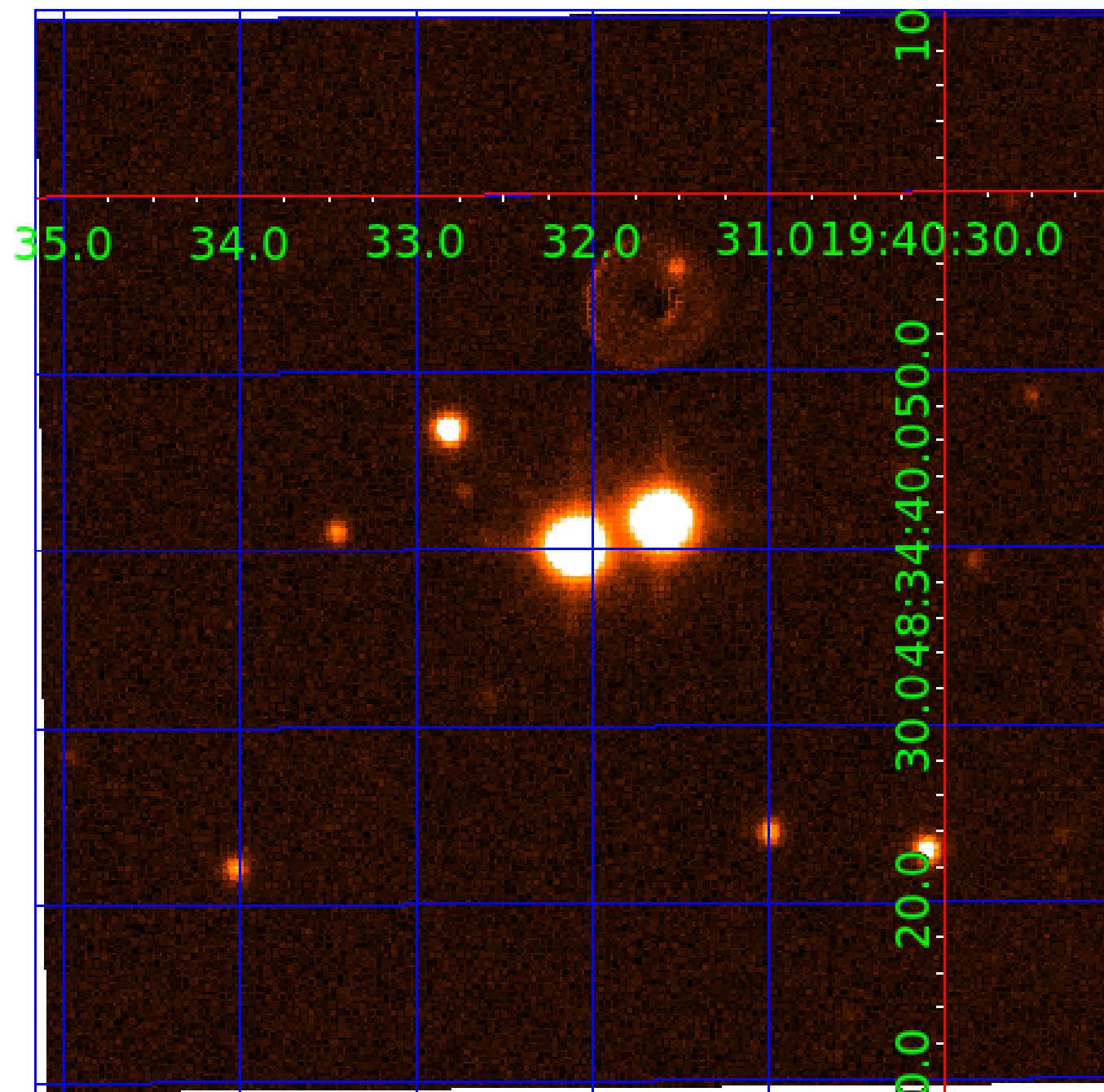


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image

Declination



# KIC 011036972

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011036972-01	OBS	No	1.020557	131.809893	71.6	3.740	15.7	7.5	2.98	4955	3.07	13217.17
011036972-02	OBS	No	429.246246	179.262160	1289.7	6.874	14.0	4.3	2.98	4955	10.40	4.19
011036972-03	OBS	No	211.151208	165.355494	7.9	1.293	13.4	0.1	2.98	4955	0.98	10.80
011036972-04	OBS	No	195.212733	272.157520	1557.8	3.014	12.2	7.2	2.98	4955	11.57	11.99
011036972-05	OBS	No	218.996531	188.473447	2128.3	16.978	10.6	5.3	2.98	4955	16.93	10.29
011036972-06	OBS	No	213.271097	204.974825	807.5	4.853	11.3	3.9	2.98	4955	8.26	10.66
011036972-07	OBS	No	74.943778	202.204954	1102.9	15.979	9.6	5.8	2.98	4955	9.70	42.98
011036972-08	OBS	No	178.823053	210.737521	1175.6	5.577	11.6	5.7	2.98	4955	10.79	13.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011036972-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
011036972-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
011036972-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
011036972-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
011036972-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS—HALO_GHOST
011036972-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_KIC_POS
011036972-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS—HALO_GHOST
011036972-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_NOFITS— HALO_GHOST

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

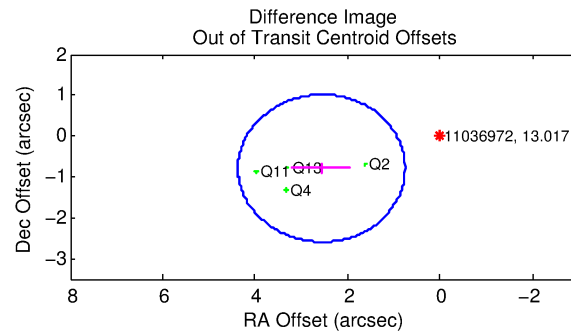
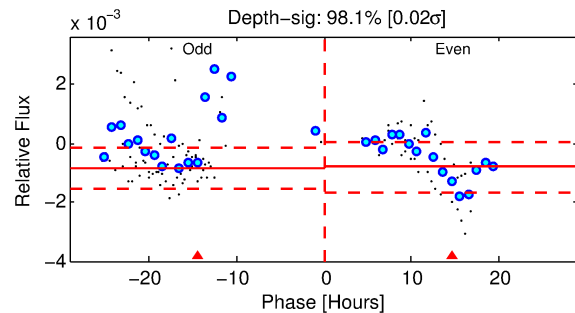
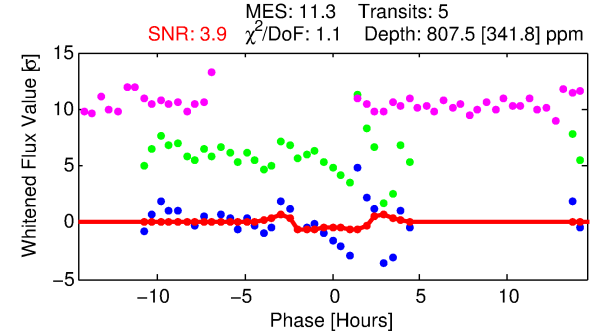
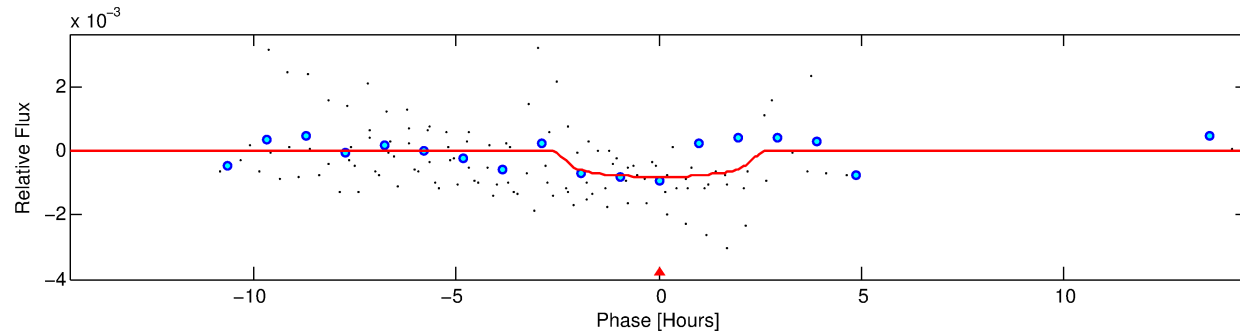
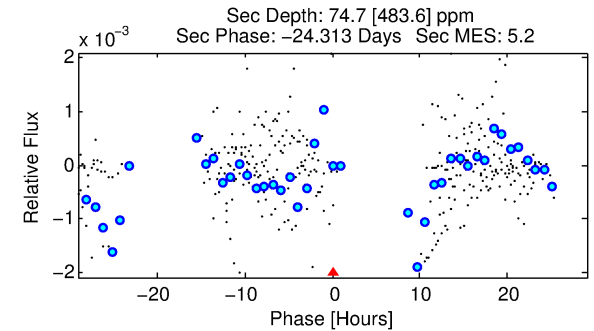
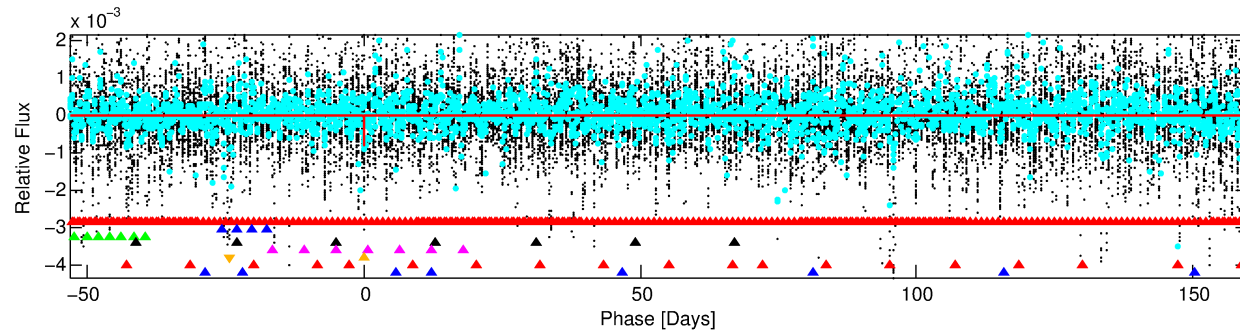
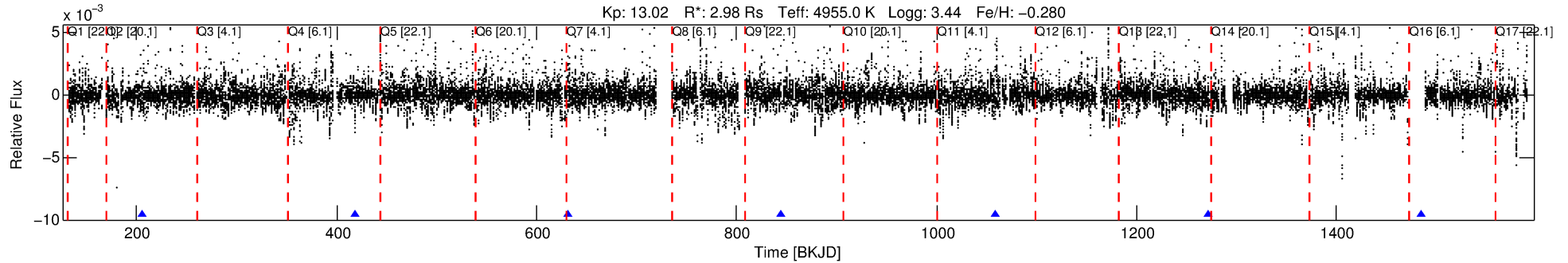
Ephemeris Match Information For 011036972-06

No Significant Match Found



# DV One-Page Summary

KIC: 11036972 Candidate: 6 of 8 Period: 213.271 d



## DV Fit Results:

Period = 213.27110 [0.00490] d  
Epoch = 204.9748 [0.0188] BKJD  
Rp/R\* = 0.0254 [0.1367]  
a/R\* = 336.59 [6295.49]  
b = 0.22 [84.11]  
Seff = 10.66 [6.38]  
Teq = 461 [69] K  
Rp = 8.26 [44.63] Re  
a = 0.6701 [0.2902] AU  
Ag = 270.67 [3400.15] [0.08σ]  
Teffp = 2889 [9064] K [0.27σ]

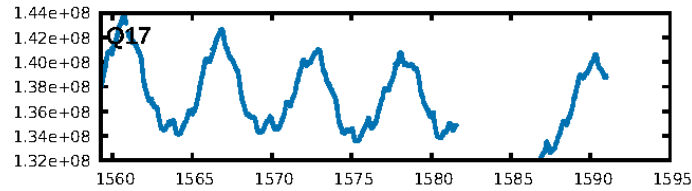
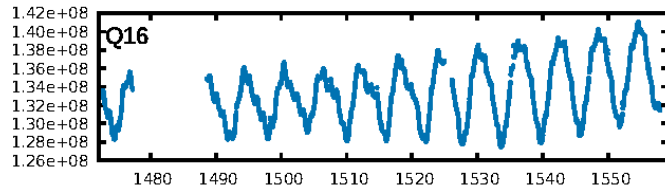
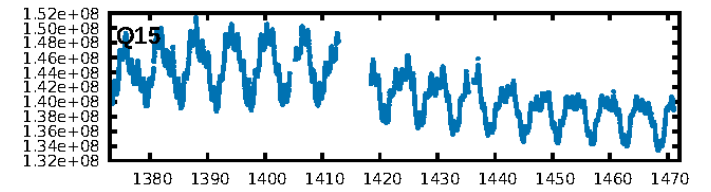
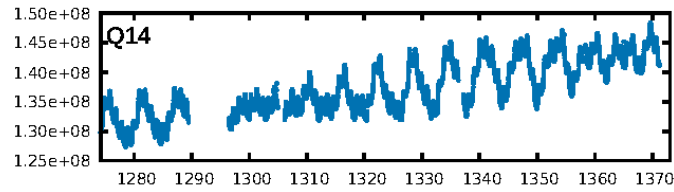
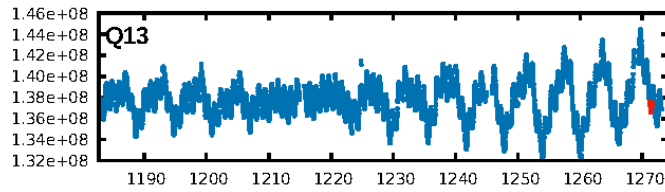
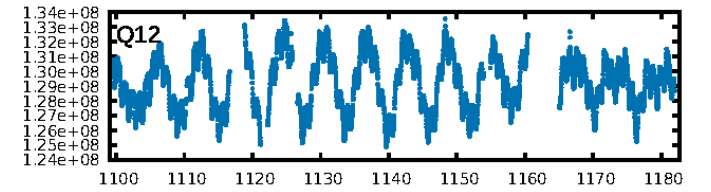
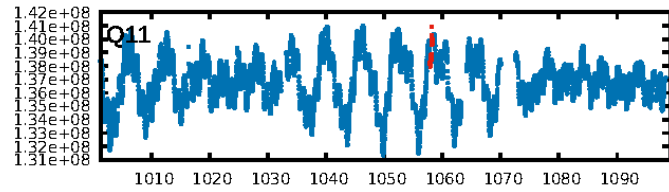
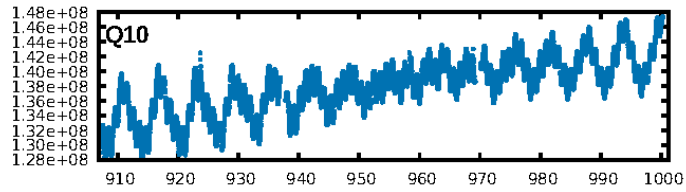
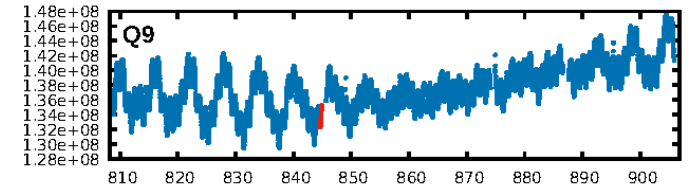
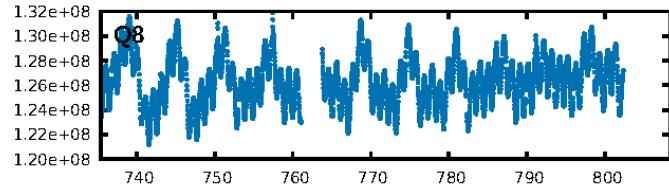
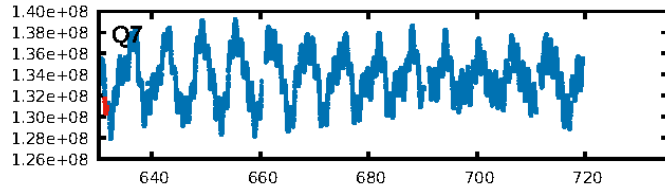
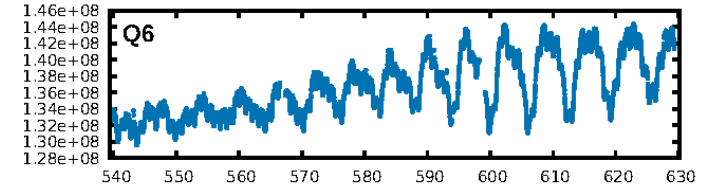
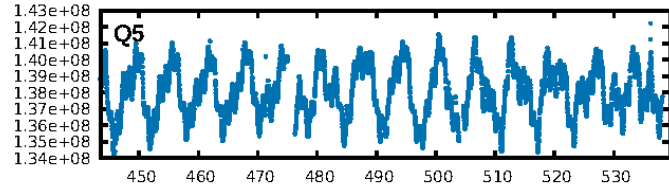
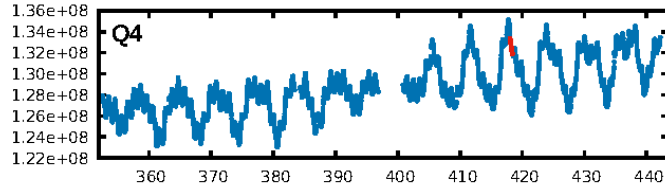
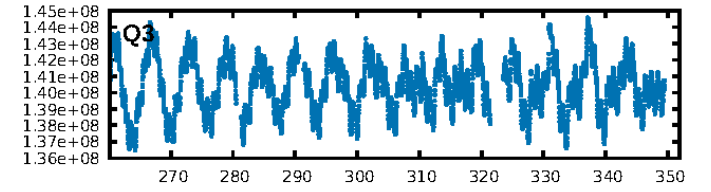
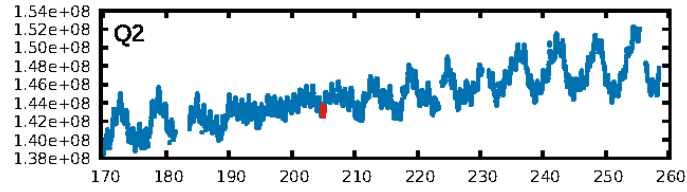
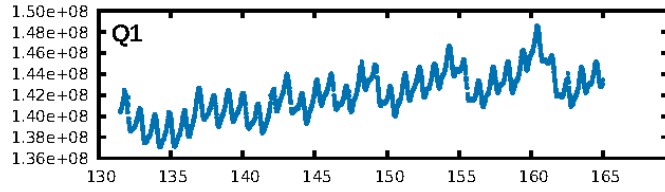
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [10.13σ]  
LongPeriod-sig: 100.0% [7.78σ]  
ModelChiSquare2-sig: 66.9%  
ModelChiSquareGof-sig: 99.9%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 0.9951  
Centroid-sig: 64.0%  
Centroid-so: 1.902 arcsec [1.33σ]  
OotOffset-rm: 2.685 arcsec [4.46σ]  
KicOffset-rm: 0.407 arcsec [3.82σ]  
OotOffset-st: 1/1/1/1 [4]  
KicOffset-st: 1/1/1/1 [4]  
DiffImageQuality-fgm: 1.00 [4/4]  
DiffImageOverlap-fno: 0.00 [0/4]

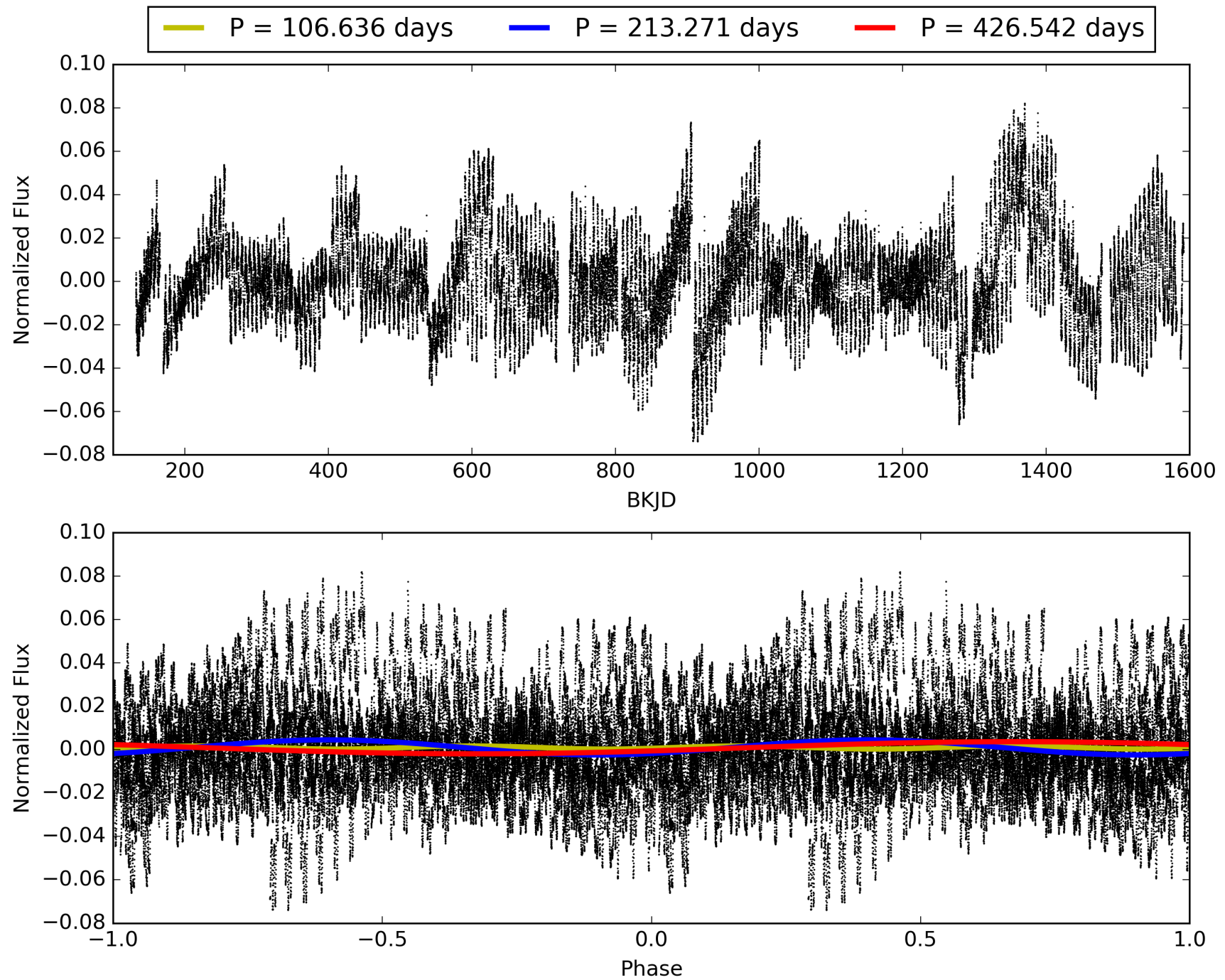
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:15:15 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011036972-06, PDC Light Curves

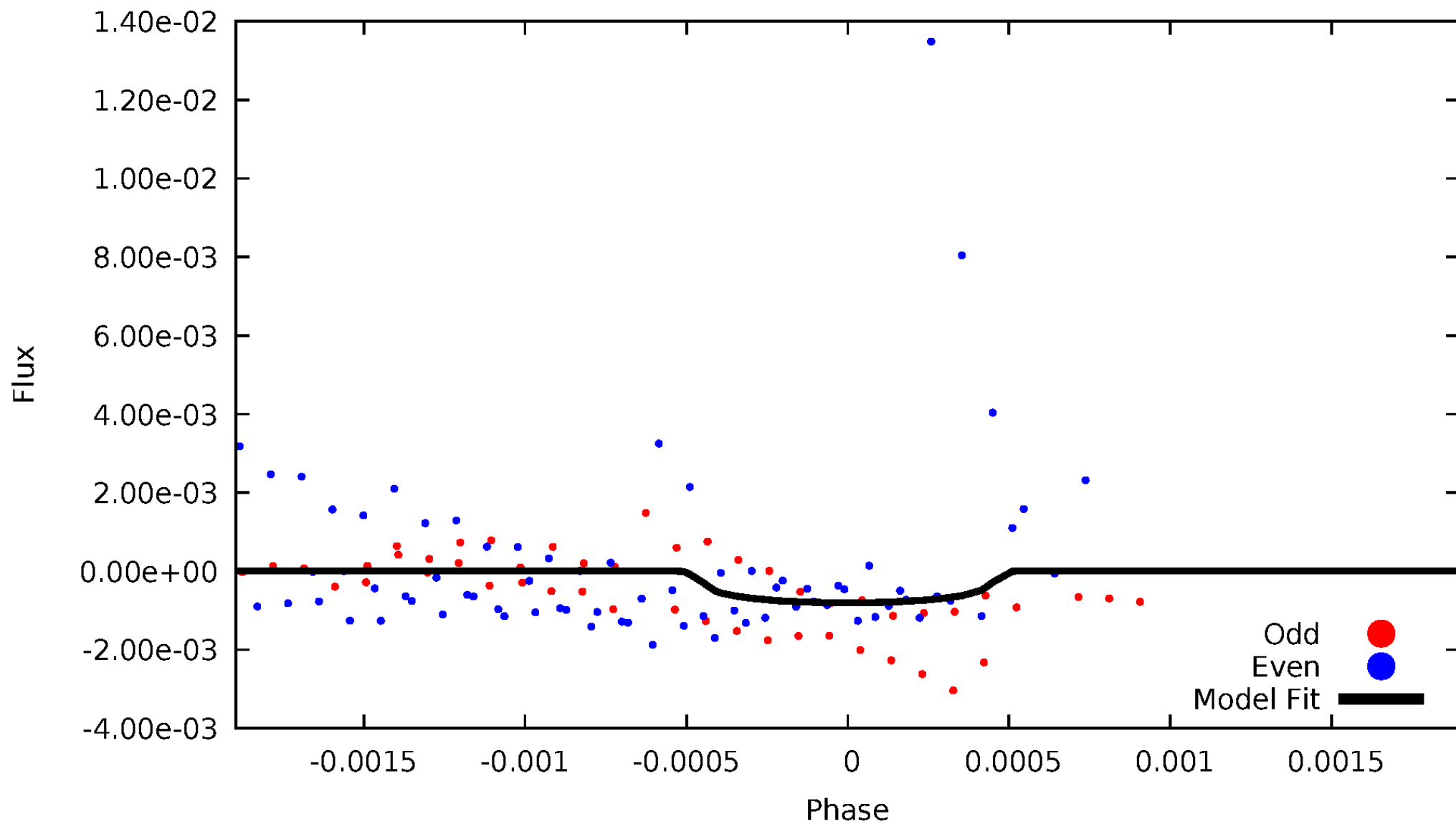


# TCE 011036972-06



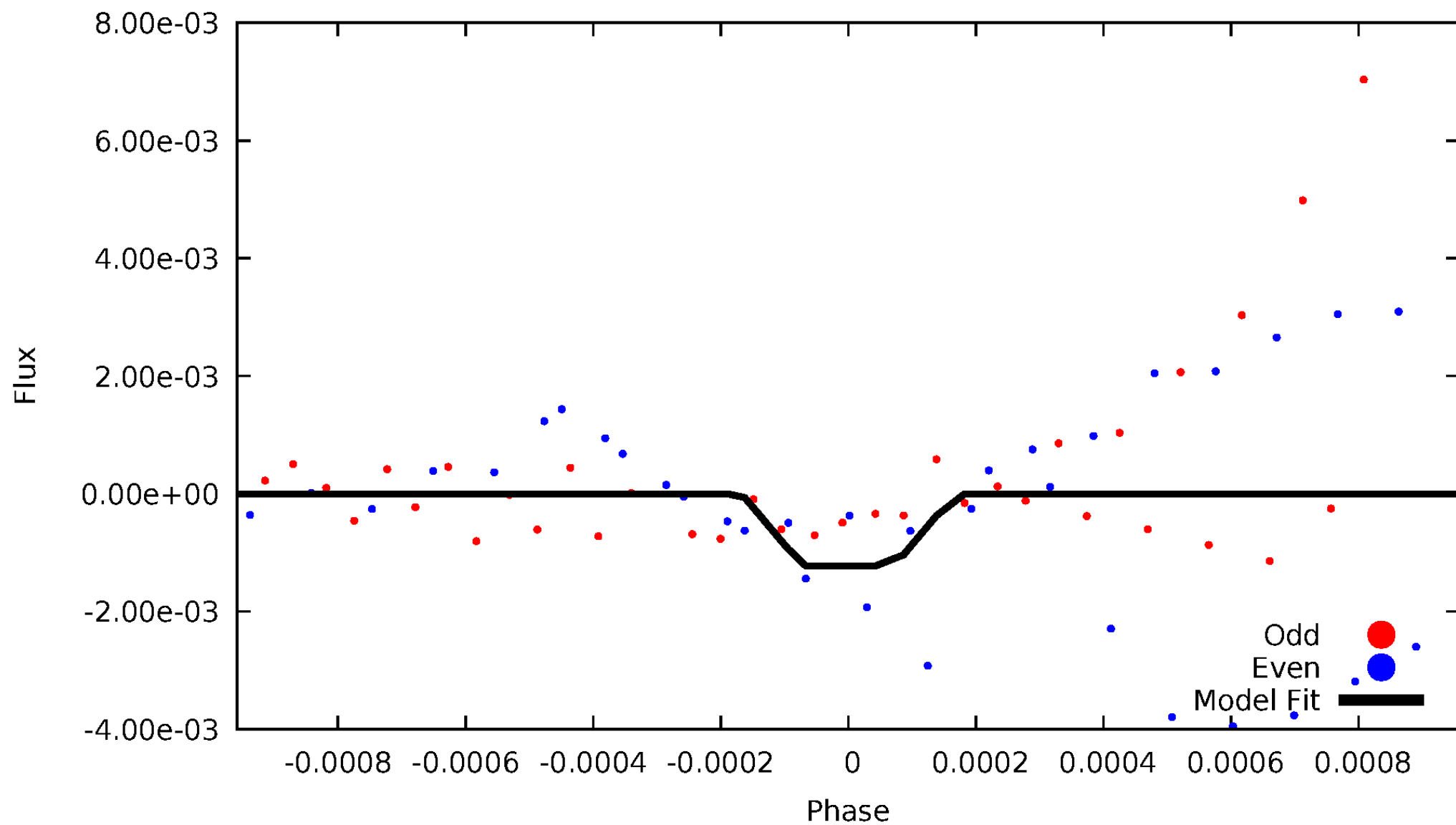
# DV Odd/Even

TCE 011036972-06



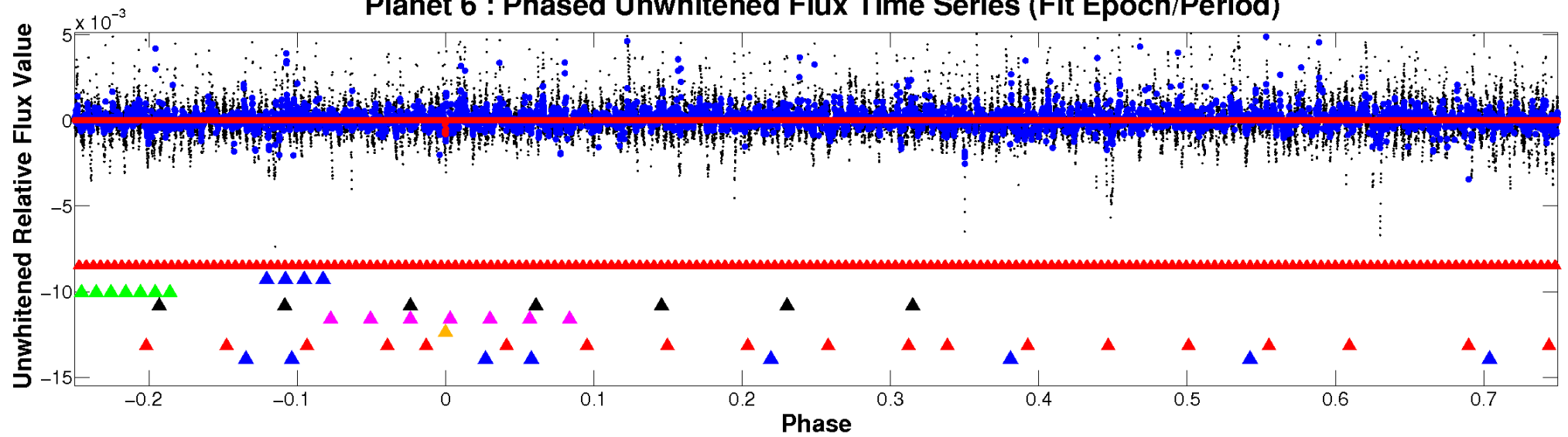
# ALT Odd/Even

TCE 011036972-06

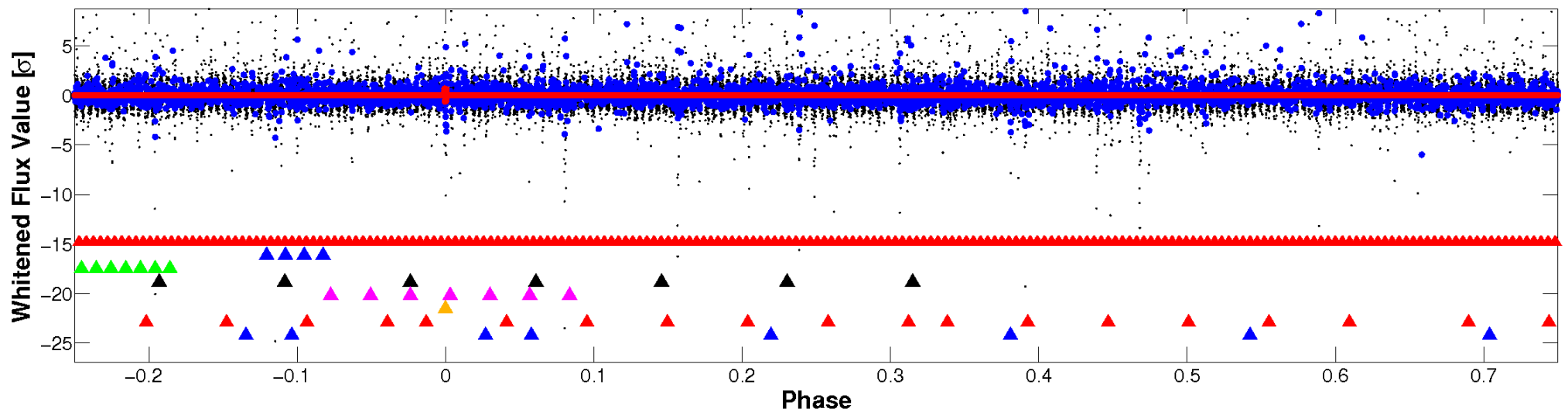


# Non-Whitened Vs. Whitened Light Curve

## Planet 6 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

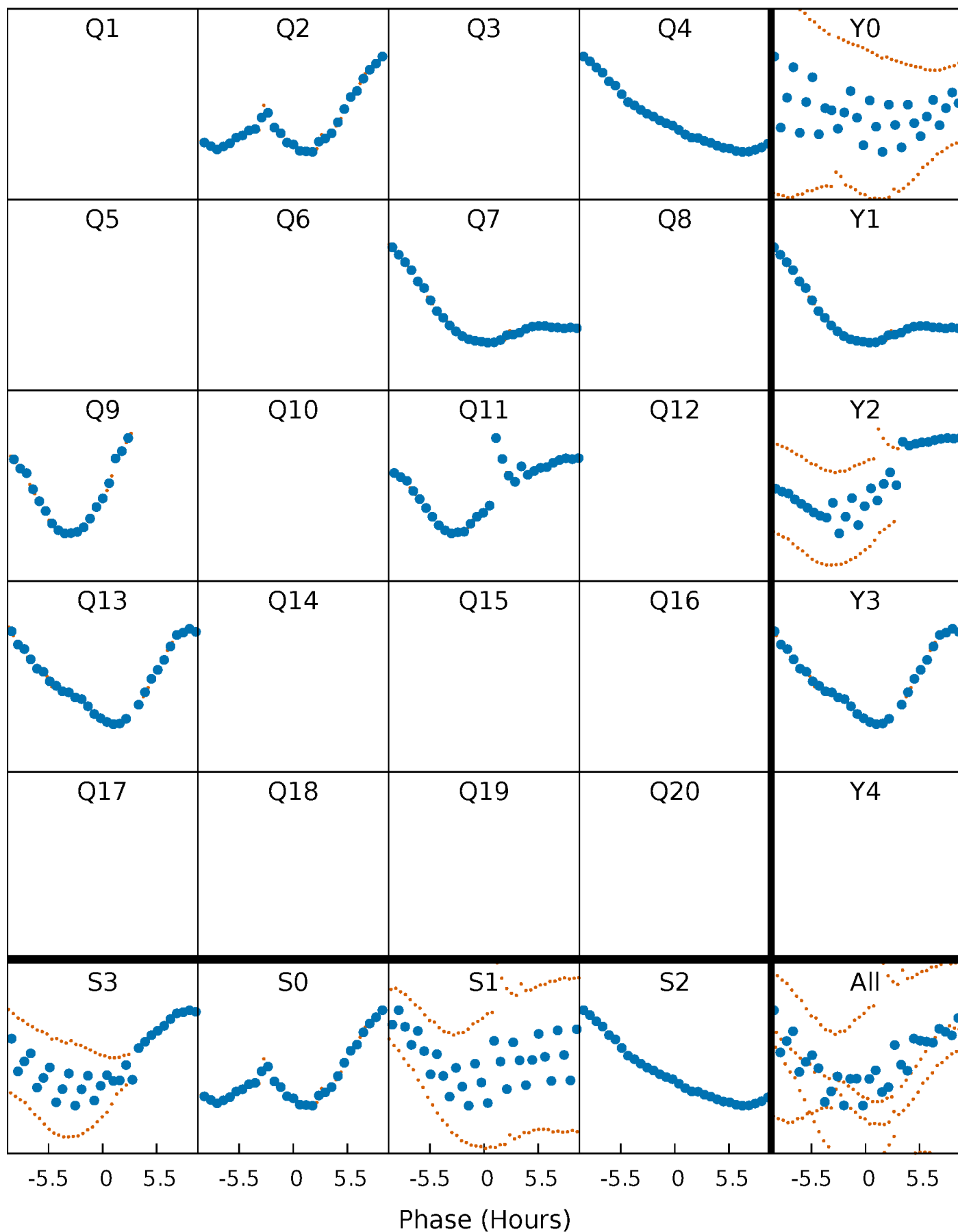


## Planet 6 : Phased Whitened Flux Time Series (Fit Epoch/Period)



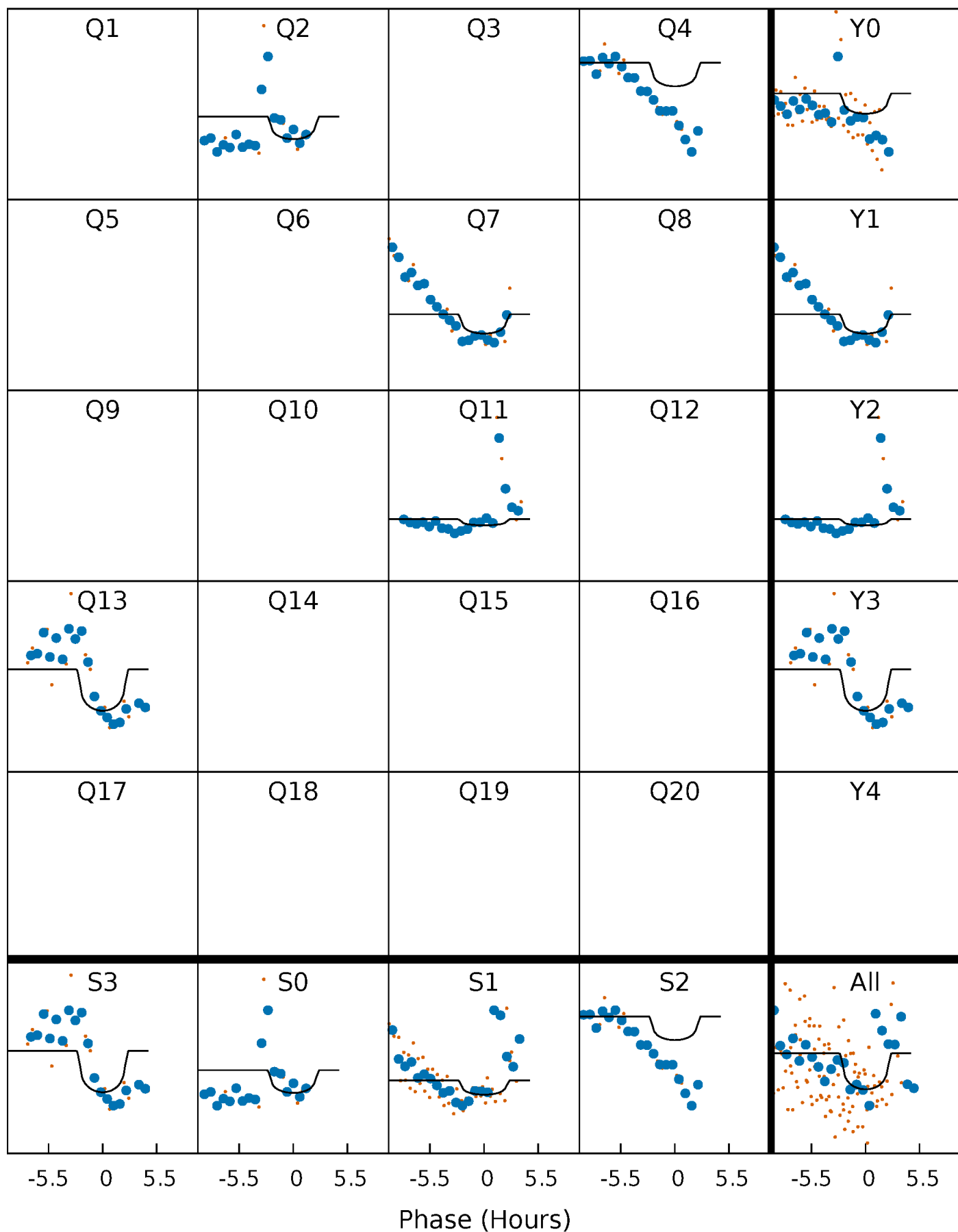
# PDC Quarter-Phased Transit Curves

TCE 011036972-06 P=213.271097 Days  $T_0=204.974825$  (BKJD)



# DV Quarter-Phased Transit Curves

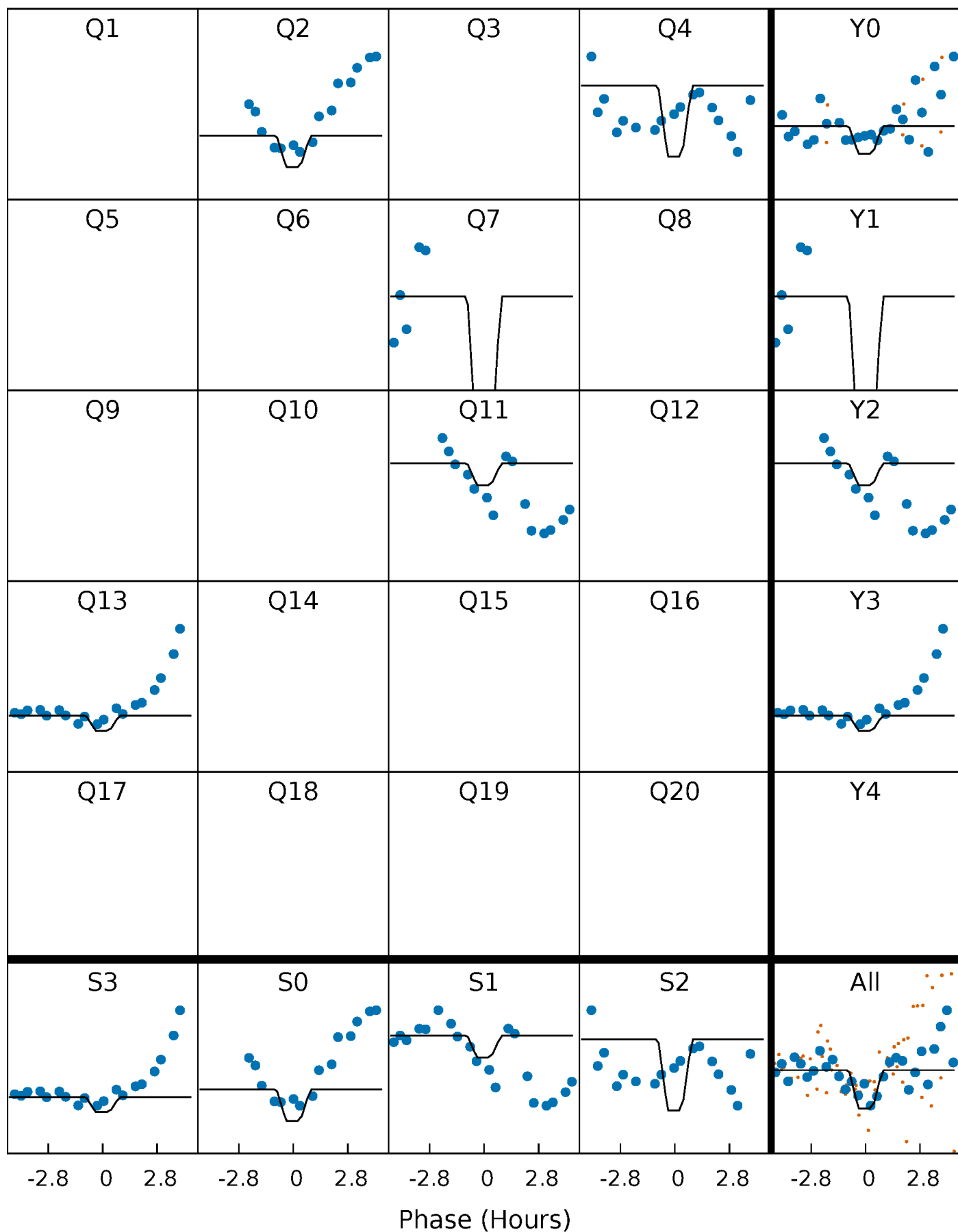
TCE 011036972-06 P=213.271097 Days  $T_0=204.974825$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

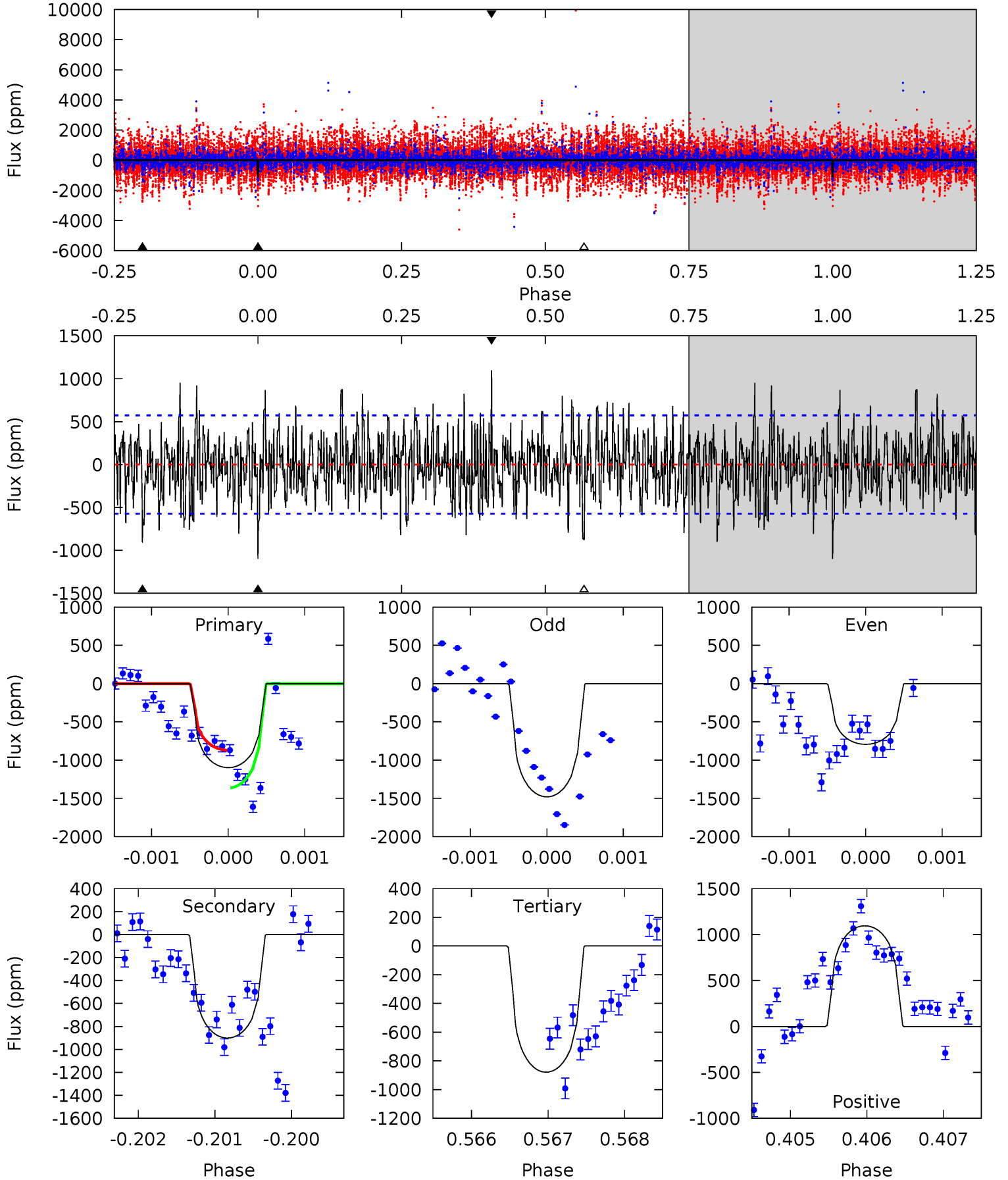
TCE 011036972-06 P=213.549579 Days  $T_0=204.624906$  (BKJD)



# DV Model-Shift Uniqueness Test

011036972-06, P = 213.271097 Days, E = 204.974825 Days

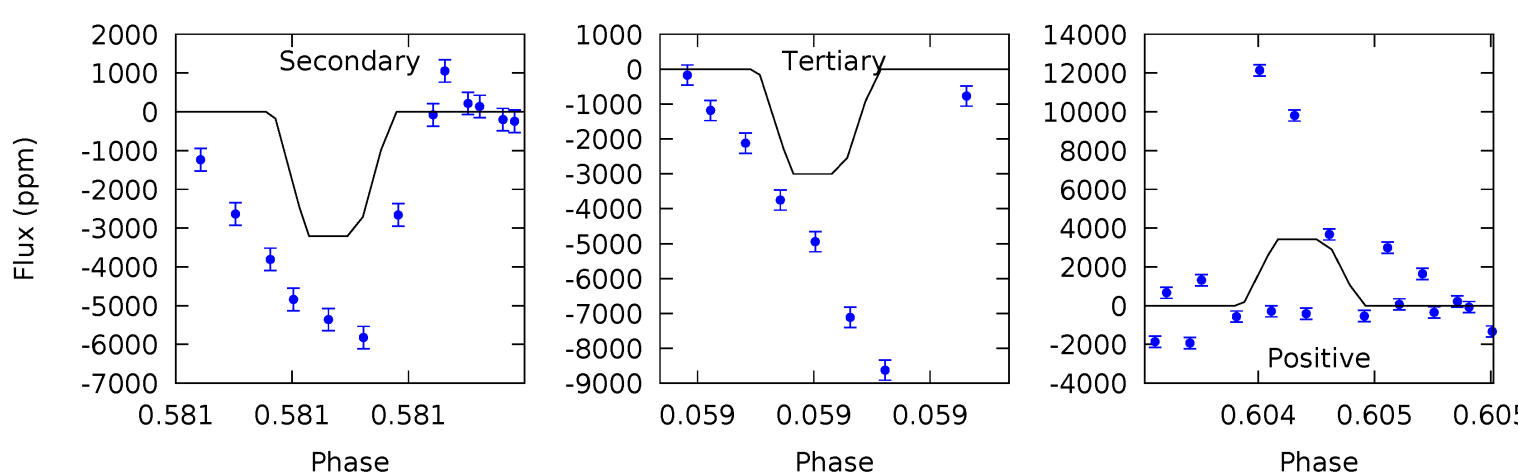
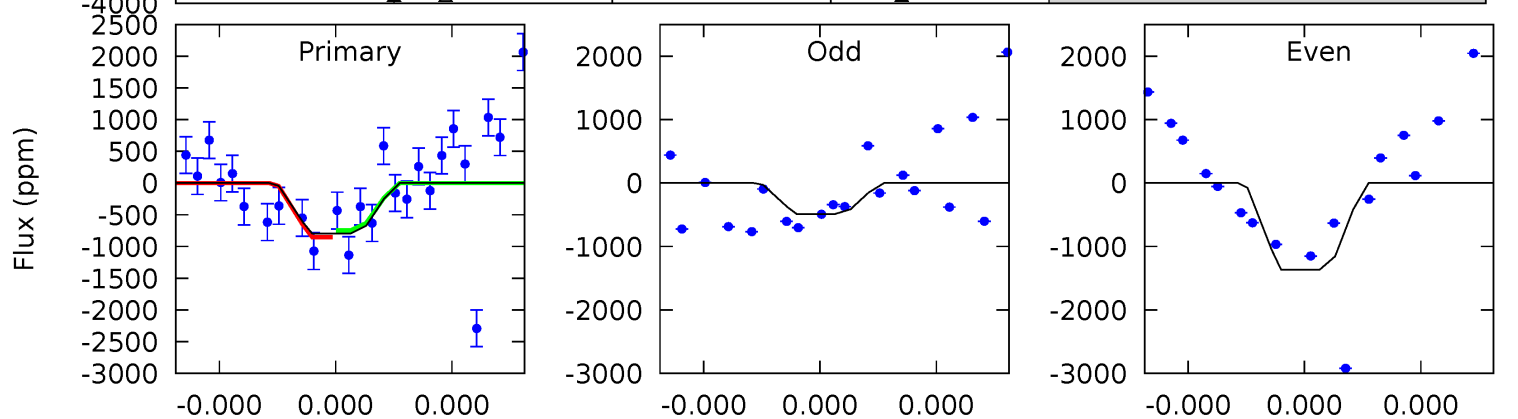
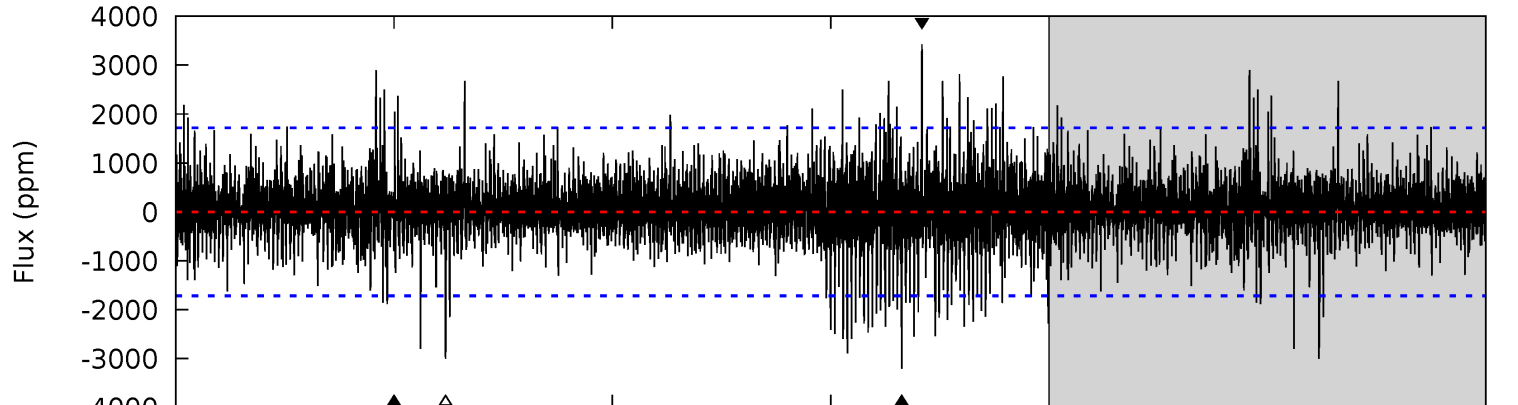
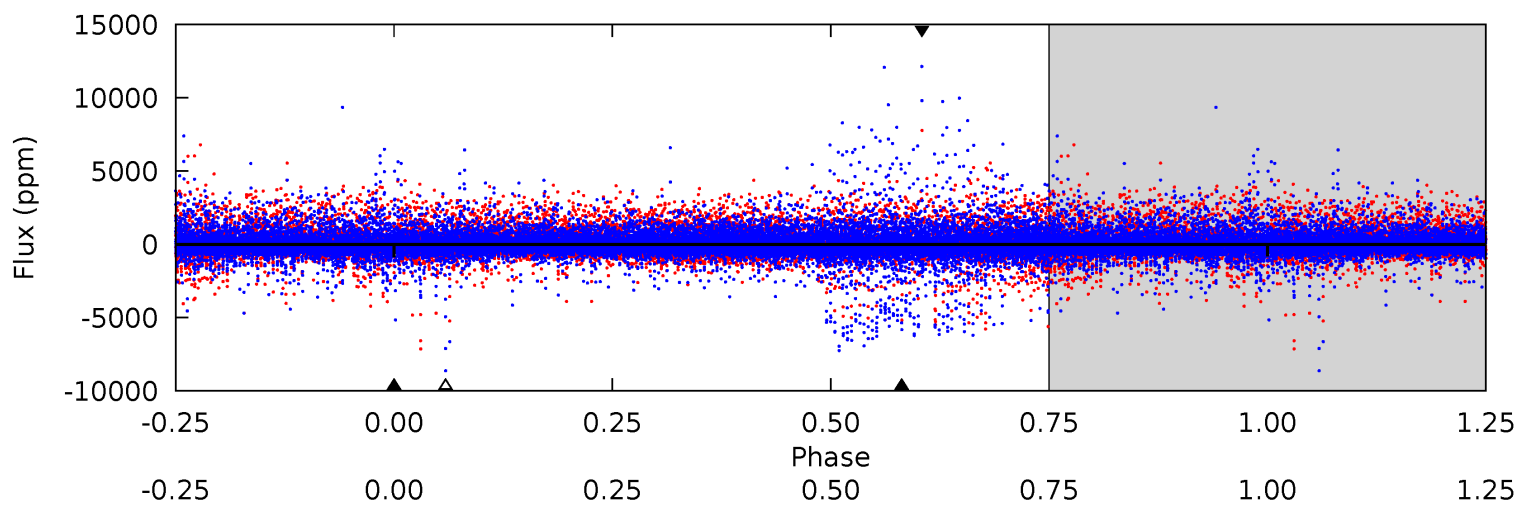
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
10.4	8.57	8.35	10.4	5.45	3.28	2.68	2.08	0.02	0.21	-1.84	3.03	0.77	0.50	2.35



# Alt Model-Shift Uniqueness Test

011036972-06, P = 213.549579 Days, E = 204.624906 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
2.62	10.5	9.86	11.2	5.64	3.59	1.81	-7.24	-8.63	0.66	-0.72	0.93	1.63	0.52	0.17



### Stellar Parameters For KIC 011036972

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4955^{+137}_{-1}$	$3.436^{+0.300}_{-0.300}$	$-0.280^{+0.300}_{-0.200}$	$2.977^{+1.638}_{-0.882}$	$0.882^{+0.290}_{-0.134}$	$0.047^{+0.088}_{-0.030}$
	+3%/-0%	+9%/-9%	+107%/-71%	+55%/-30%	+33%/-15%	+186%/-64%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 011036972-06 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	-901±105	$31.66^{+40.59}_{-21.16}$	$638^{+87}_{-63}$	$3217^{+1669}_{-577}$	$228^{+1935}_{-186}$
Alt.	-3205±304	$35.87^{+38.22}_{-25.97}$	$637^{+80}_{-62}$	$3837^{+2784}_{-726}$	$633^{+7999}_{-487}$

$T_{max}$  = Theoretical Maximum Planetary Temperature

$T_{obs}$  = Observed Planetary Temperature (Assuming A=0.3)

$A_{obs}$  = Observed Albedo (Assuming T=0)

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

## DV Centroid Data

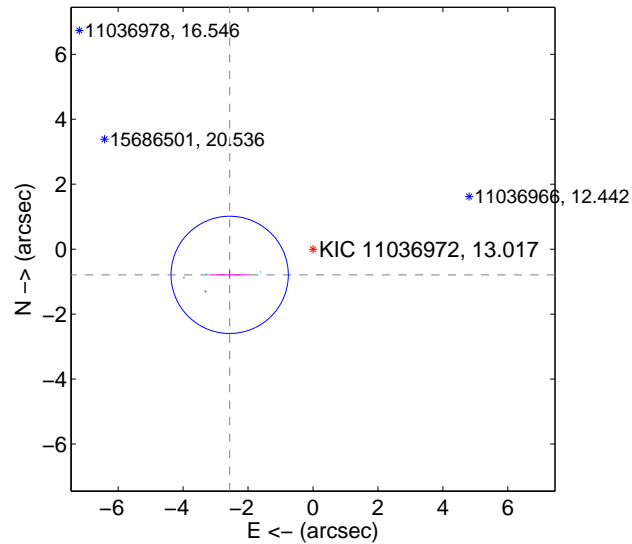
Supplemental centroid analysis for 011036972-06. Kepler magnitude: 13.02. Transit SNR 3.90

There are 4 quarters with good PRF difference image offsets

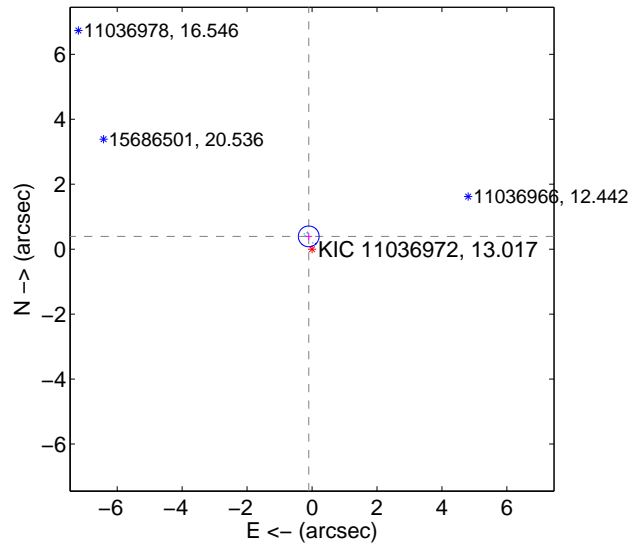
The OOT PRF centroid is offset from the target star catalog position by about 3.29 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.685 \pm 0.602$	4.46	$2.566 \pm 0.628$	$-0.791 \pm 0.122$
PRF-fit source offset from KIC position	$0.407 \pm 0.107$	3.82	$0.102 \pm 0.106$	$0.394 \pm 0.107$
photometric centroid source offset	$1.90 \pm 1.44$	1.33	$-1.69 \pm 1.60$	$0.88 \pm 0.52$

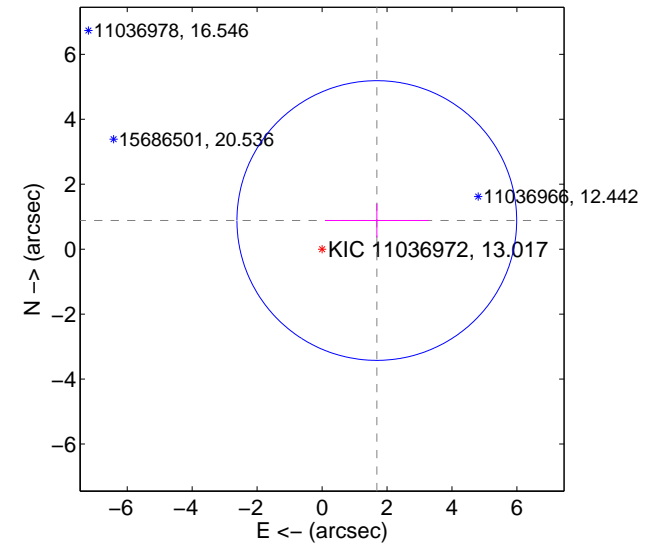
offset from difference PRF-fit to OOT PRF-fit



offset from difference PRF-fit to KIC position

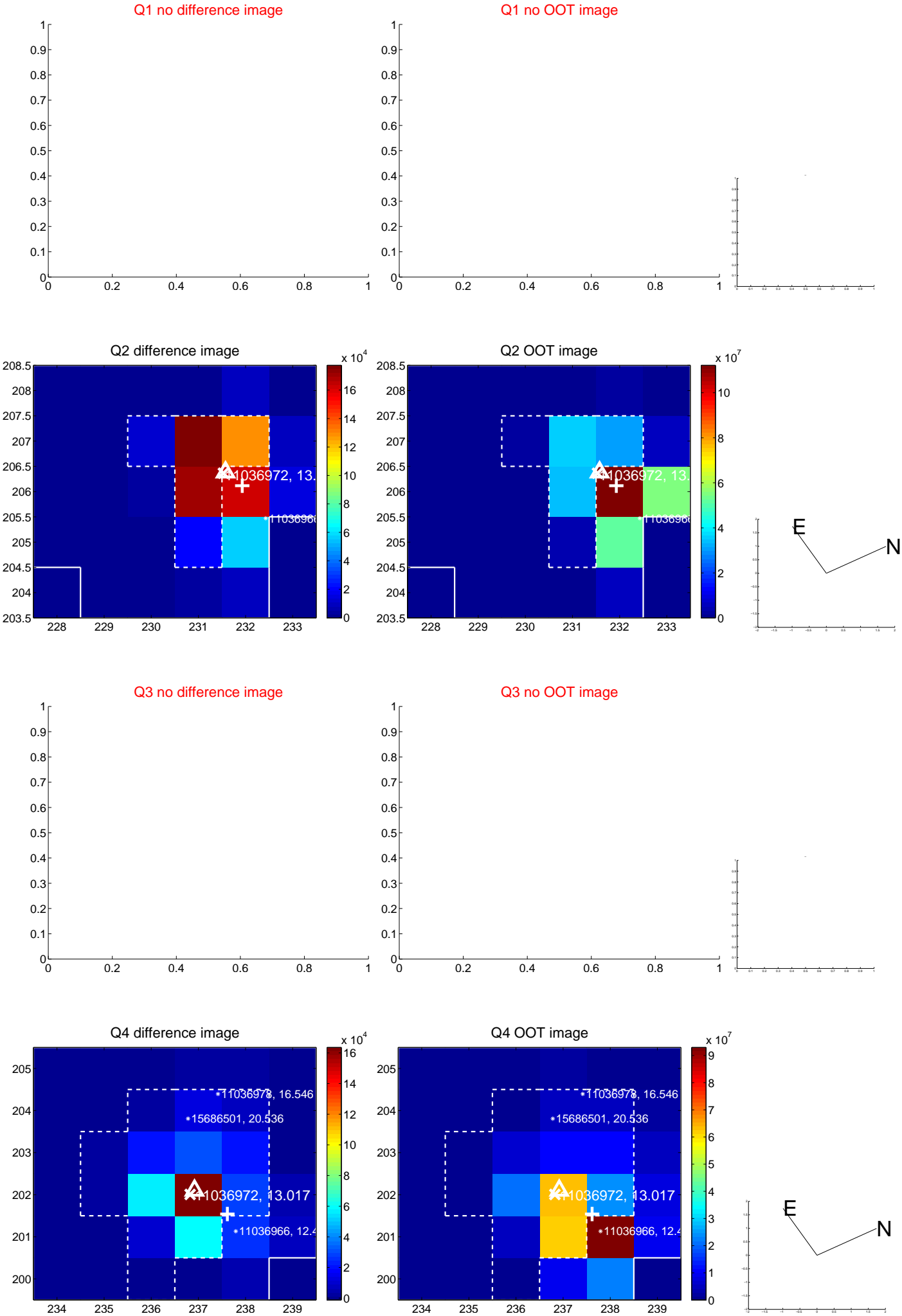


offset from photometric centroids



Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

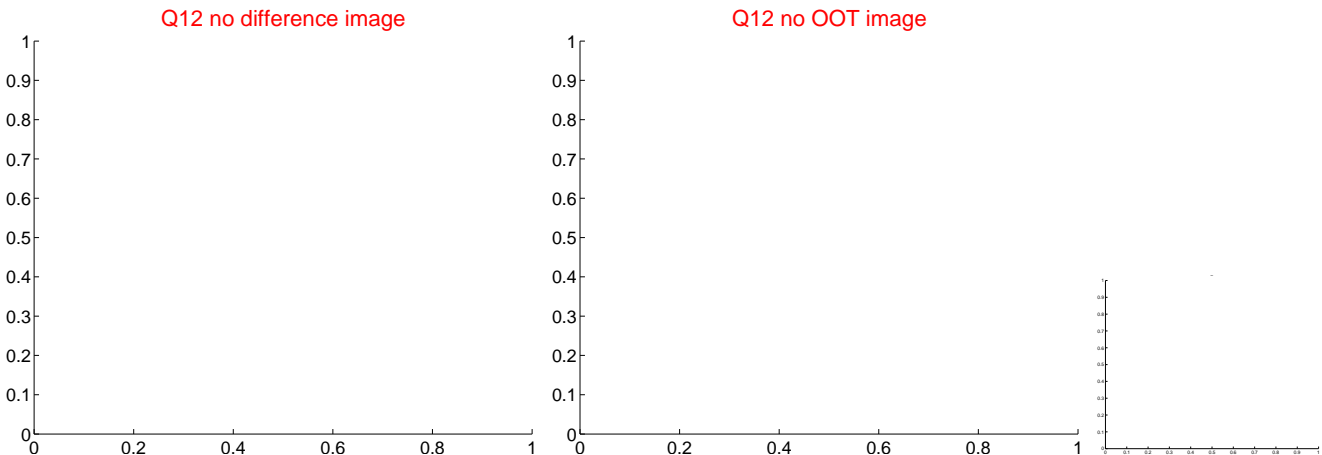
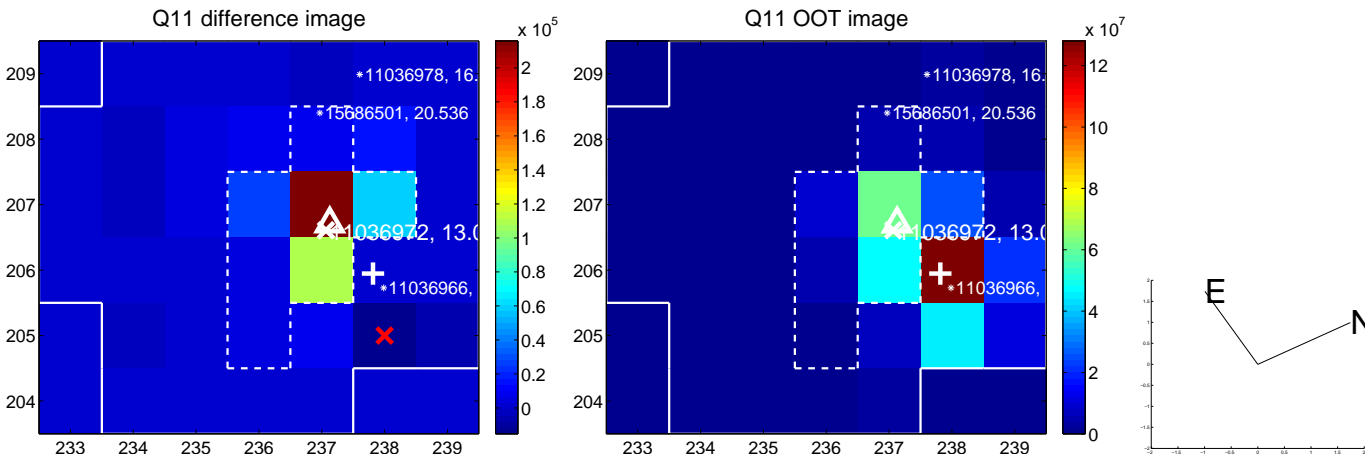
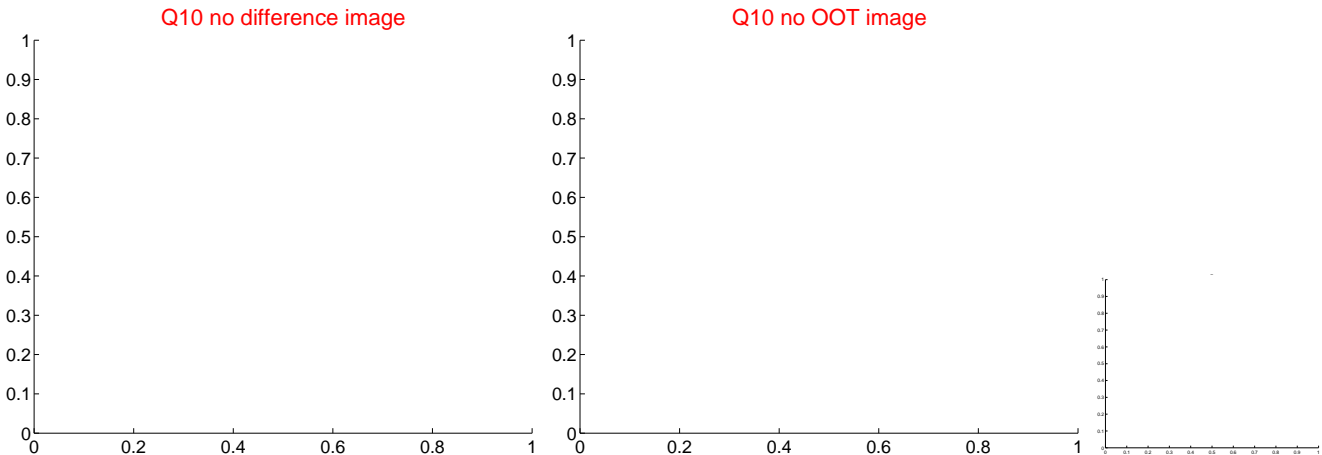
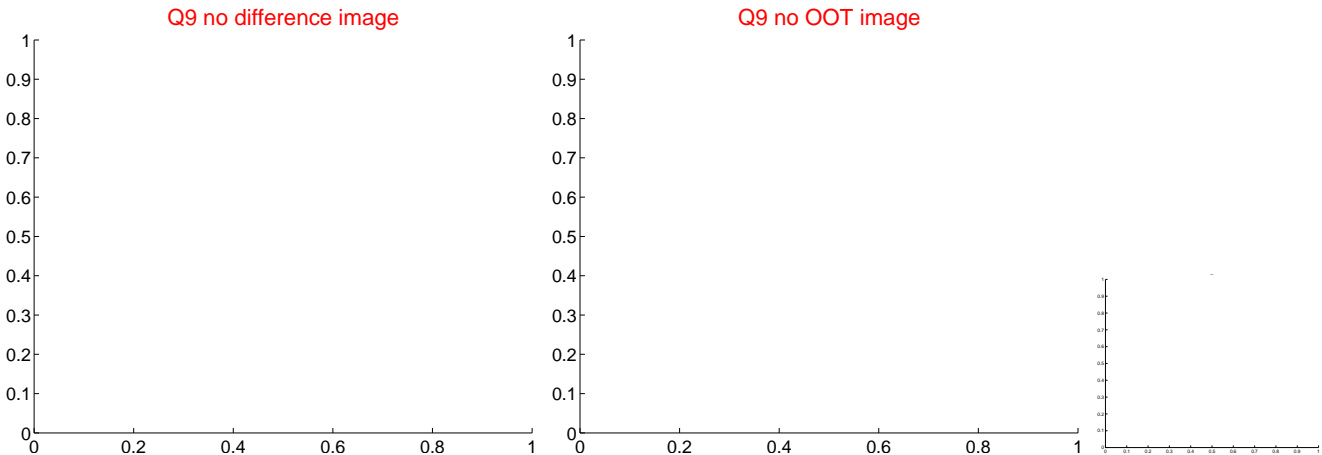
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.

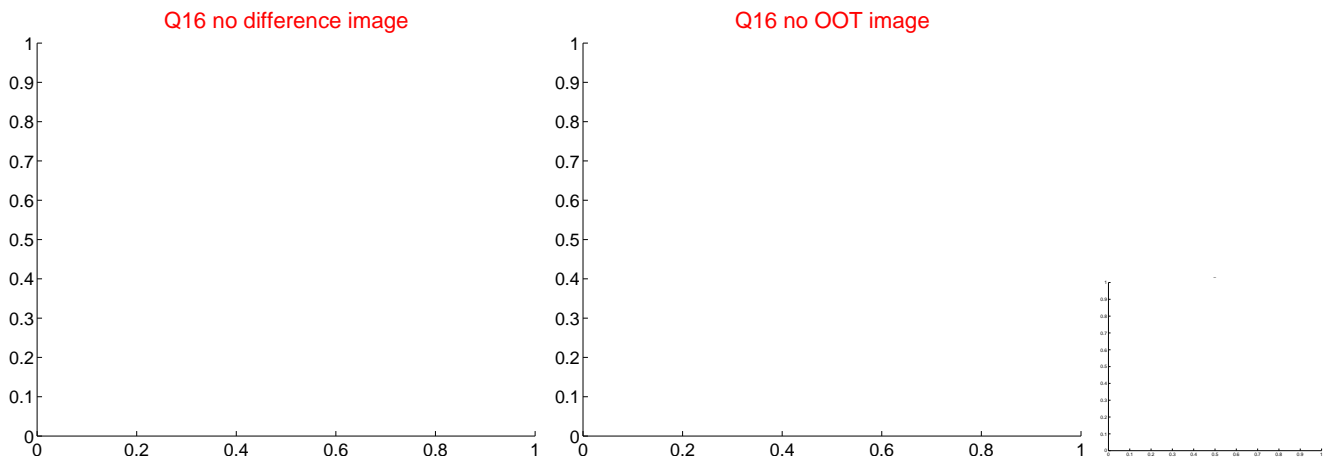
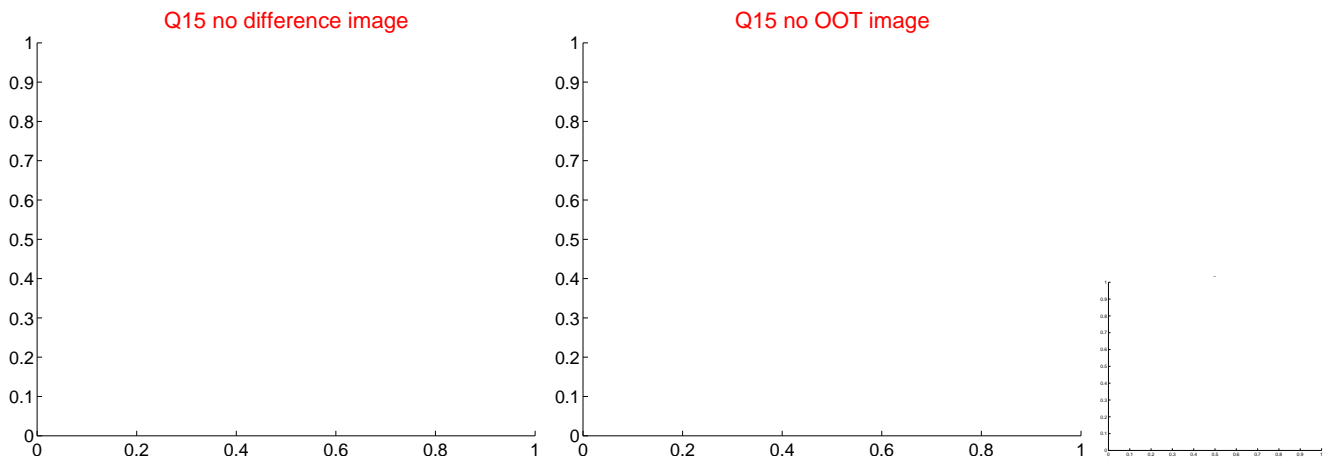
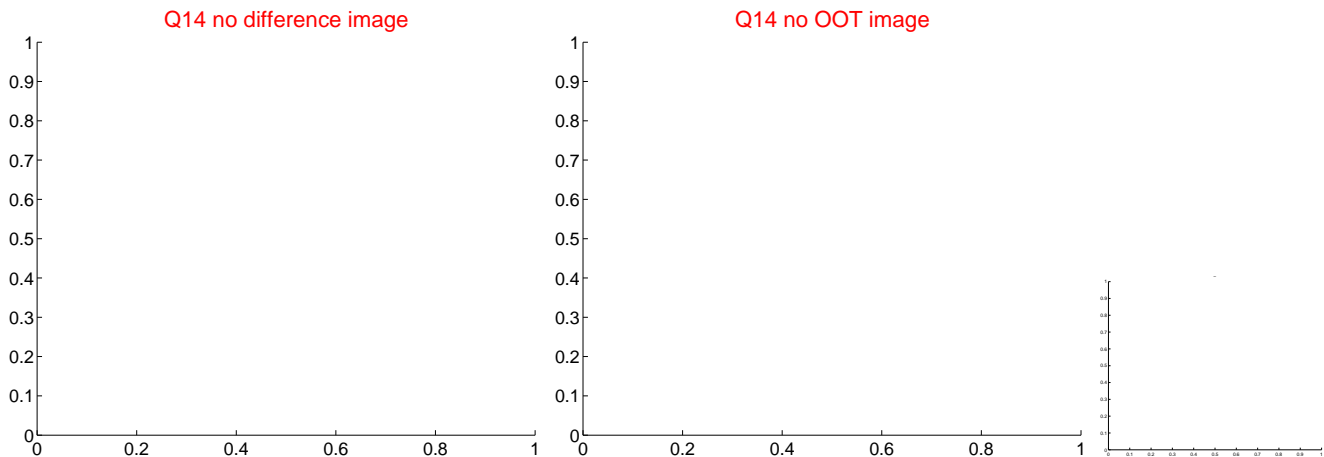
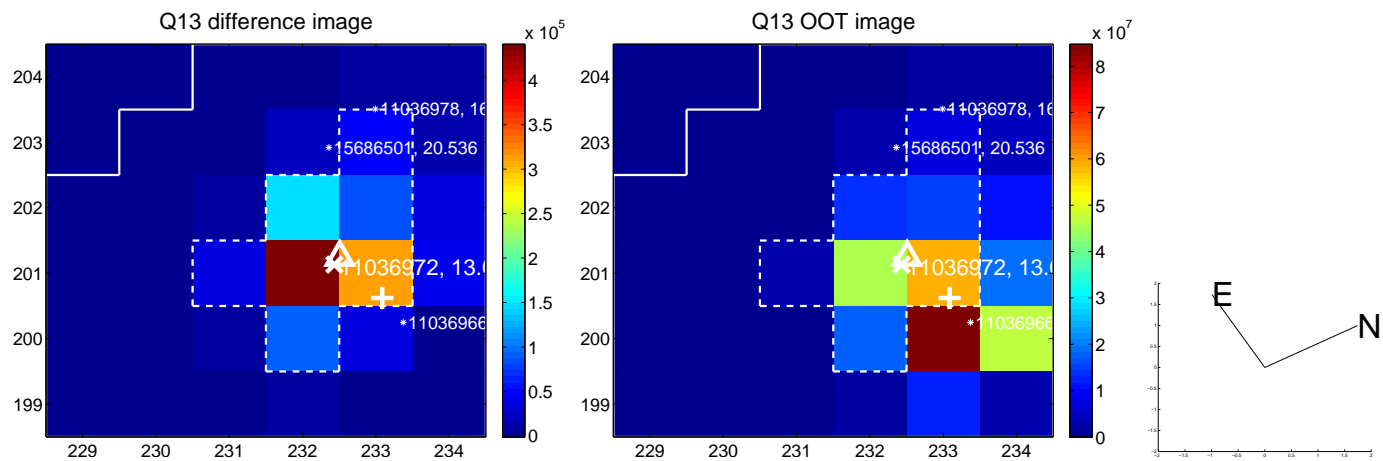


white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value

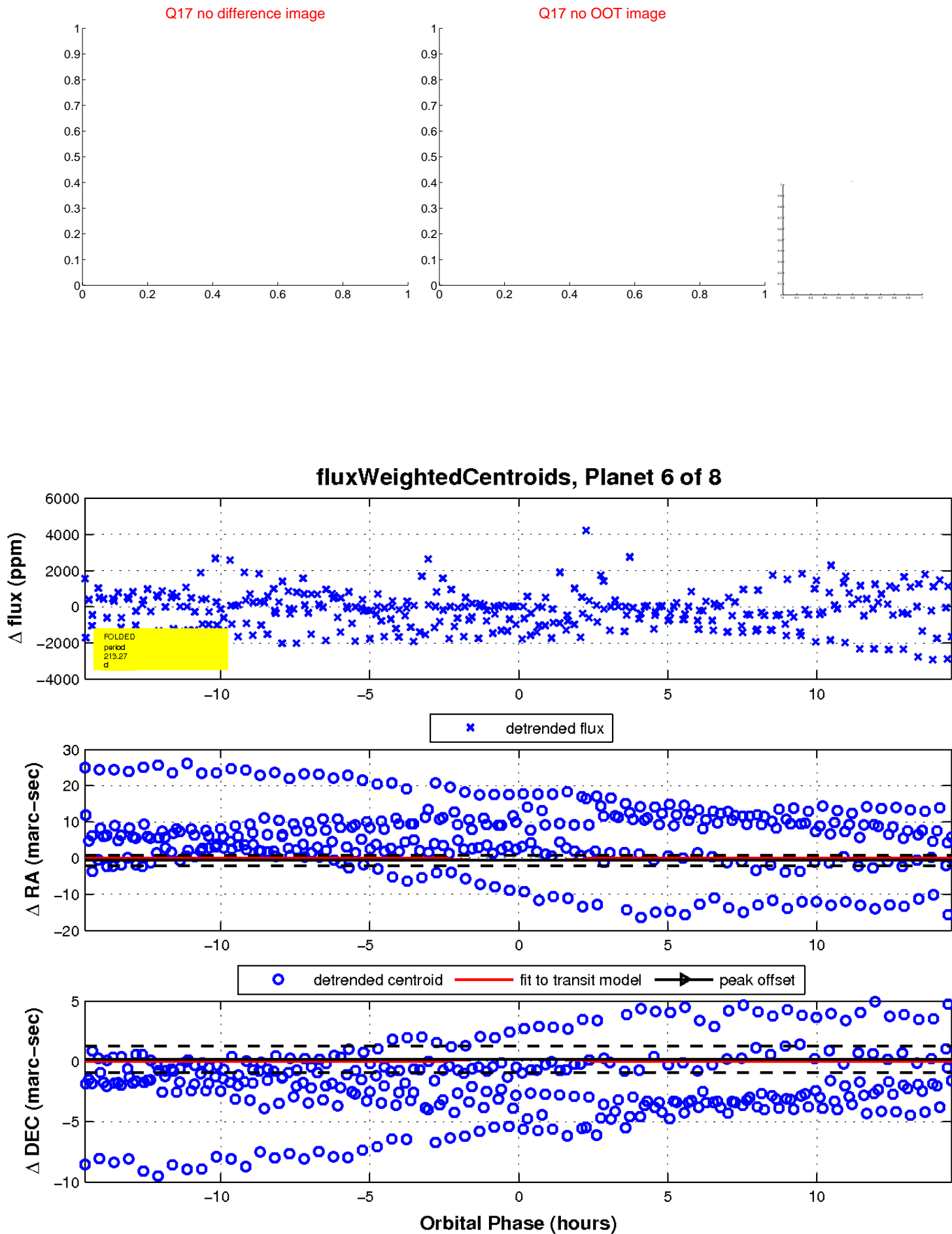




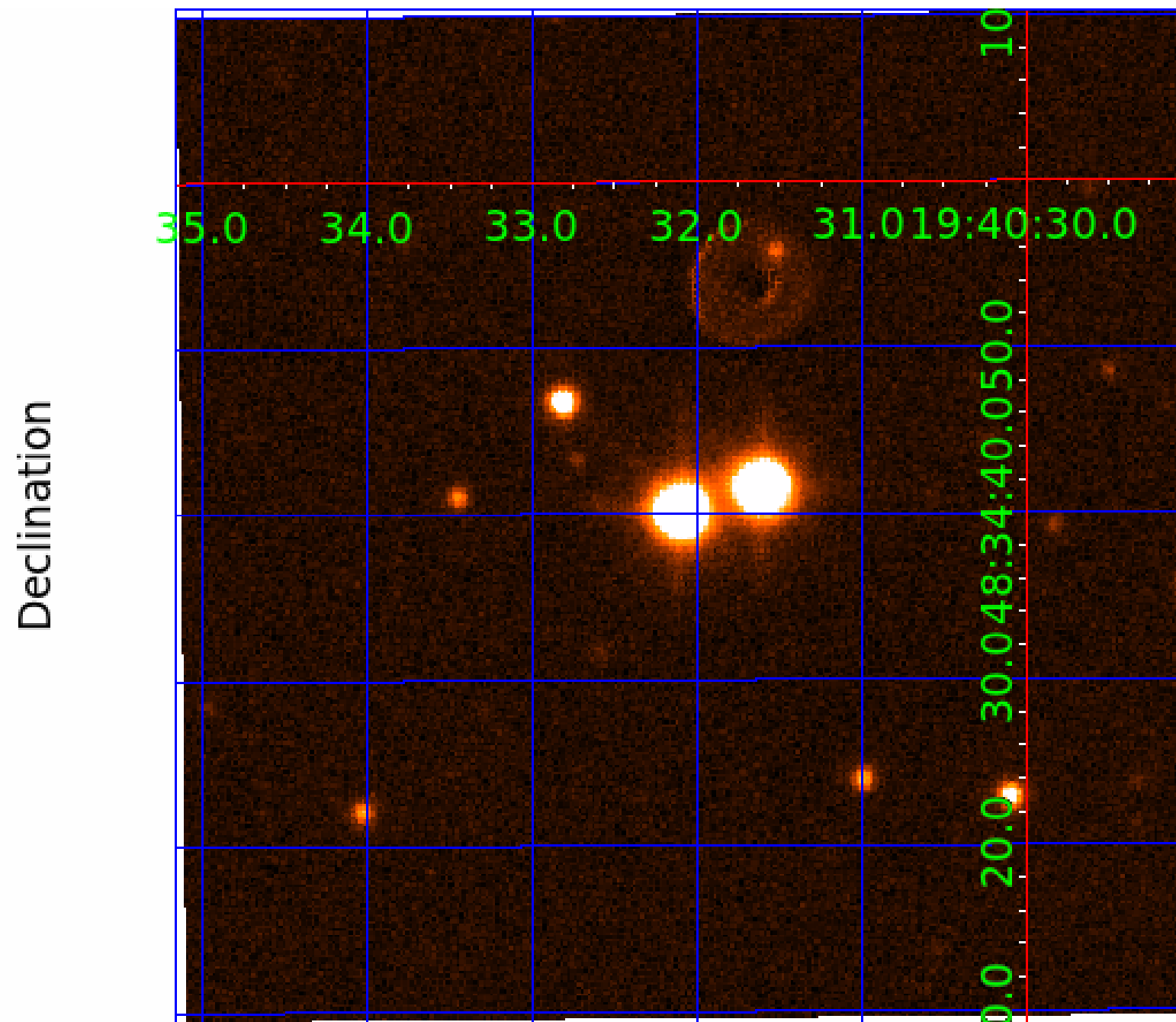
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image



# KIC 011036972

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011036972-01	OBS	No	1.020557	131.809893	71.6	3.740	15.7	7.5	2.98	4955	3.07	13217.17
011036972-02	OBS	No	429.246246	179.262160	1289.7	6.874	14.0	4.3	2.98	4955	10.40	4.19
011036972-03	OBS	No	211.151208	165.355494	7.9	1.293	13.4	0.1	2.98	4955	0.98	10.80
011036972-04	OBS	No	195.212733	272.157520	1557.8	3.014	12.2	7.2	2.98	4955	11.57	11.99
011036972-05	OBS	No	218.996531	188.473447	2128.3	16.978	10.6	5.3	2.98	4955	16.93	10.29
011036972-06	OBS	No	213.271097	204.974825	807.5	4.853	11.3	3.9	2.98	4955	8.26	10.66
011036972-07	OBS	No	74.943778	202.204954	1102.9	15.979	9.6	5.8	2.98	4955	9.70	42.98
011036972-08	OBS	No	178.823053	210.737521	1175.6	5.577	11.6	5.7	2.98	4955	10.79	13.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011036972-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
011036972-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
011036972-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
011036972-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
011036972-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS—HALO_GHOST
011036972-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—CENT_KIC_POS
011036972-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS—HALO_GHOST
011036972-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_NOFITS—HALO_GHOST

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

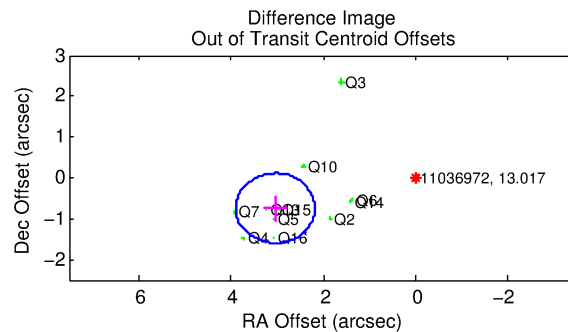
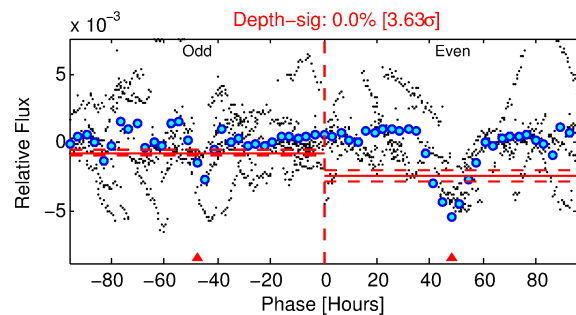
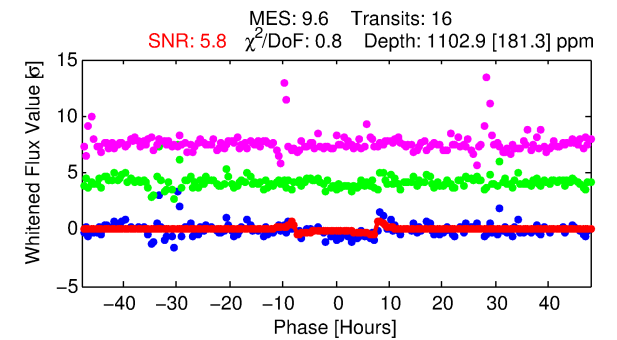
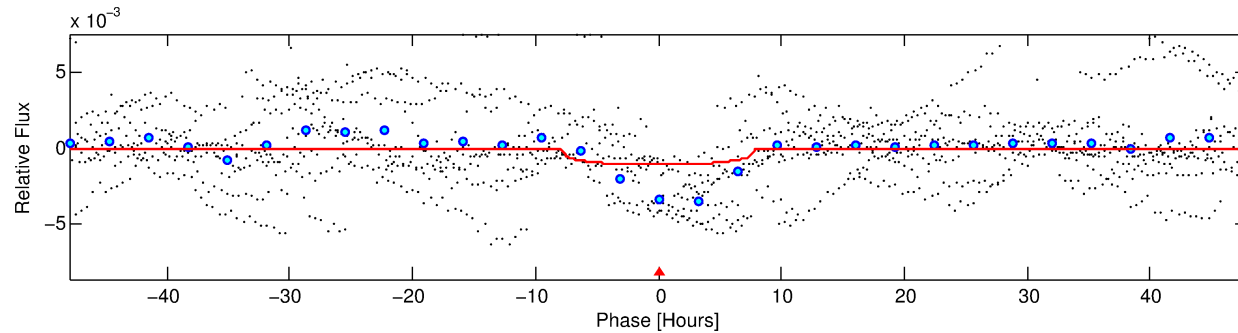
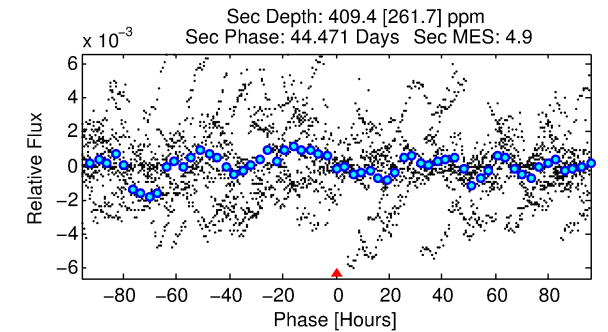
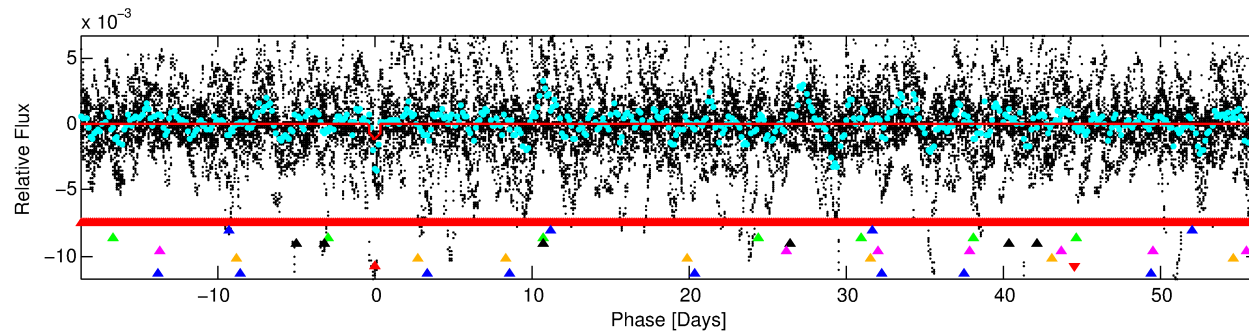
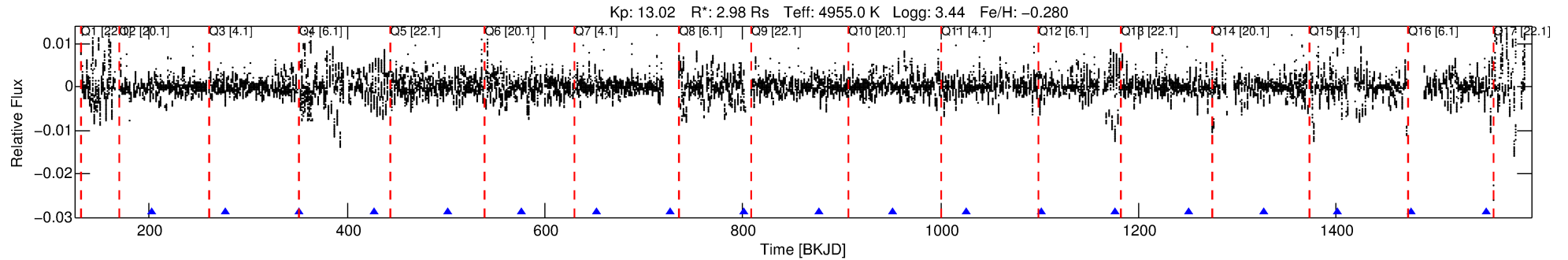
See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

Ephemeris Match Information For 011036972-07

No Significant Match Found

# DV One-Page Summary

KIC: 11036972 Candidate: 7 of 8 Period: 74.944 d



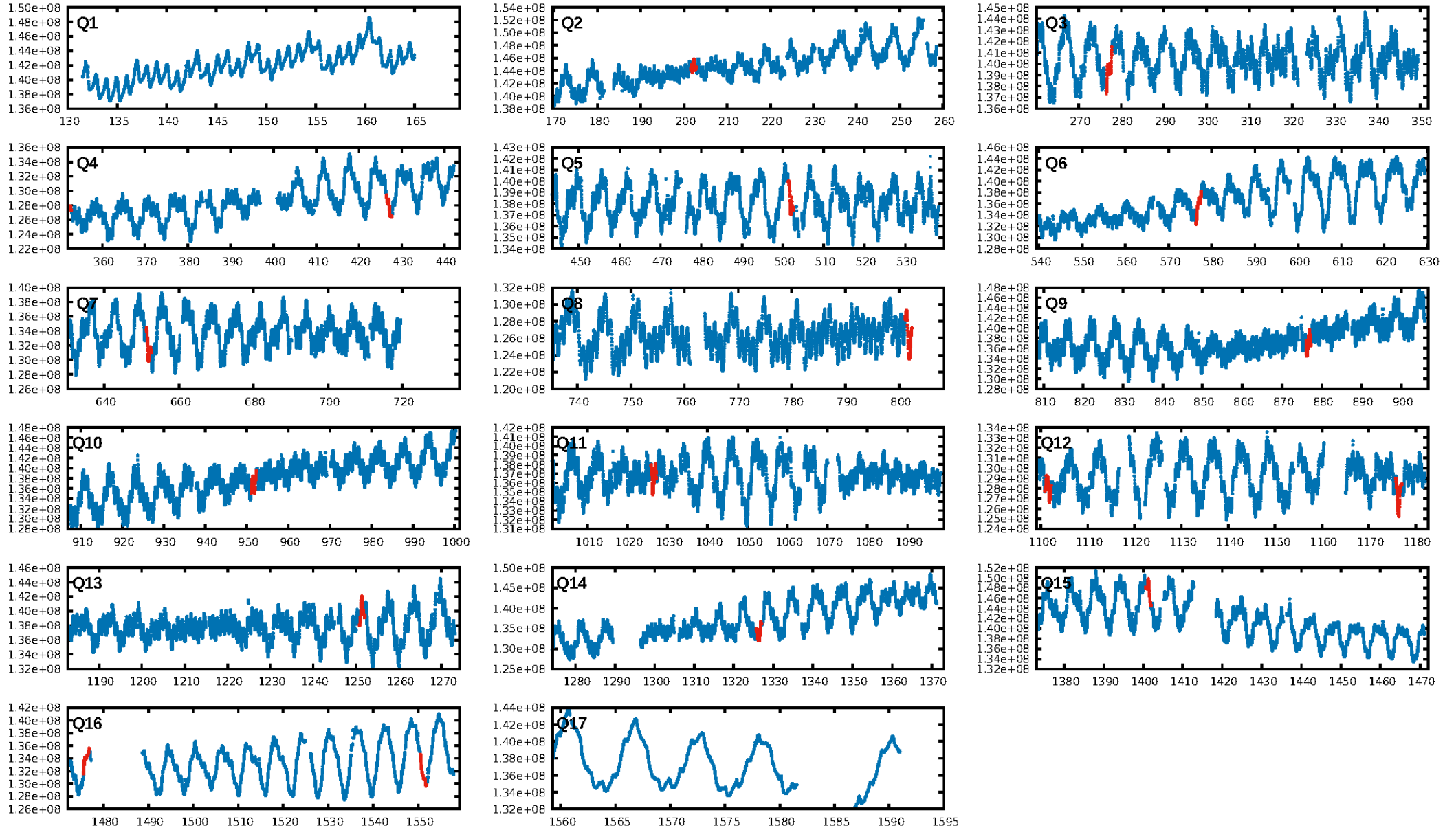
## DV Fit Results:

Period = 74.94378 [0.00075] d  
Epoch = 202.2050 [0.0075] BKJD  
Rp/R\* = 0.0298 [0.0079]  
a/R\* = 35.52 [30.23]  
b = 0.28 [2.83]  
Seff = 42.98 [25.75]  
Teq = 653 [98] K  
Rp = 9.69 [5.92] Re  
a = 0.3337 [0.1445] AU  
Ag = 266.86 [271.76] [0.98 $\sigma$ ]  
Teffp = 4080 [855] K [3.98 $\sigma$ ]

## DV Diagnostic Results:

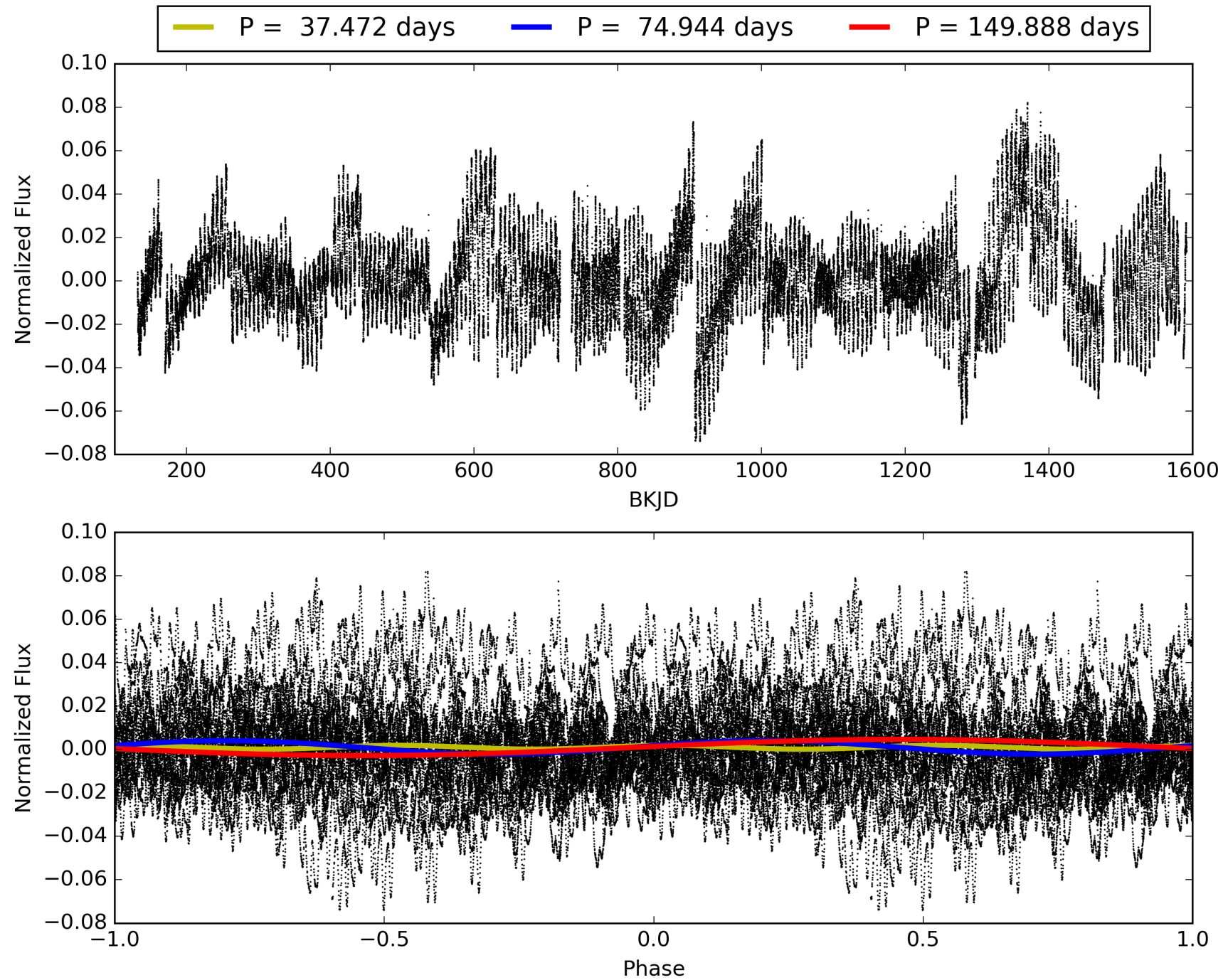
ShortPeriod-sig: 100.0% [108.11 $\sigma$ ]  
LongPeriod-sig: 100.0% [147.31 $\sigma$ ]  
ModelChiSquare2-sig: 0.6%  
ModelChiSquareGoF-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [16/16]  
GhostDiagnostic-chr: -0.2056  
Centroid-sig: 0.8%  
Centroid-so: 2.055 arcsec [1.93 $\sigma$ ]  
OotOffset-rm: 3.132 arcsec [10.99 $\sigma$ ]  
KicOffset-rm: 0.369 arcsec [1.21 $\sigma$ ]  
OotOffset-st: 4/3/2/2 [11]  
KicOffset-st: 4/3/2/2 [11]  
DiffImageQuality-fgm: 0.55 [6/11]  
DiffImageOverlap-fno: 0.00 [0/12]

# TCE 011036972-07, PDC Light Curves



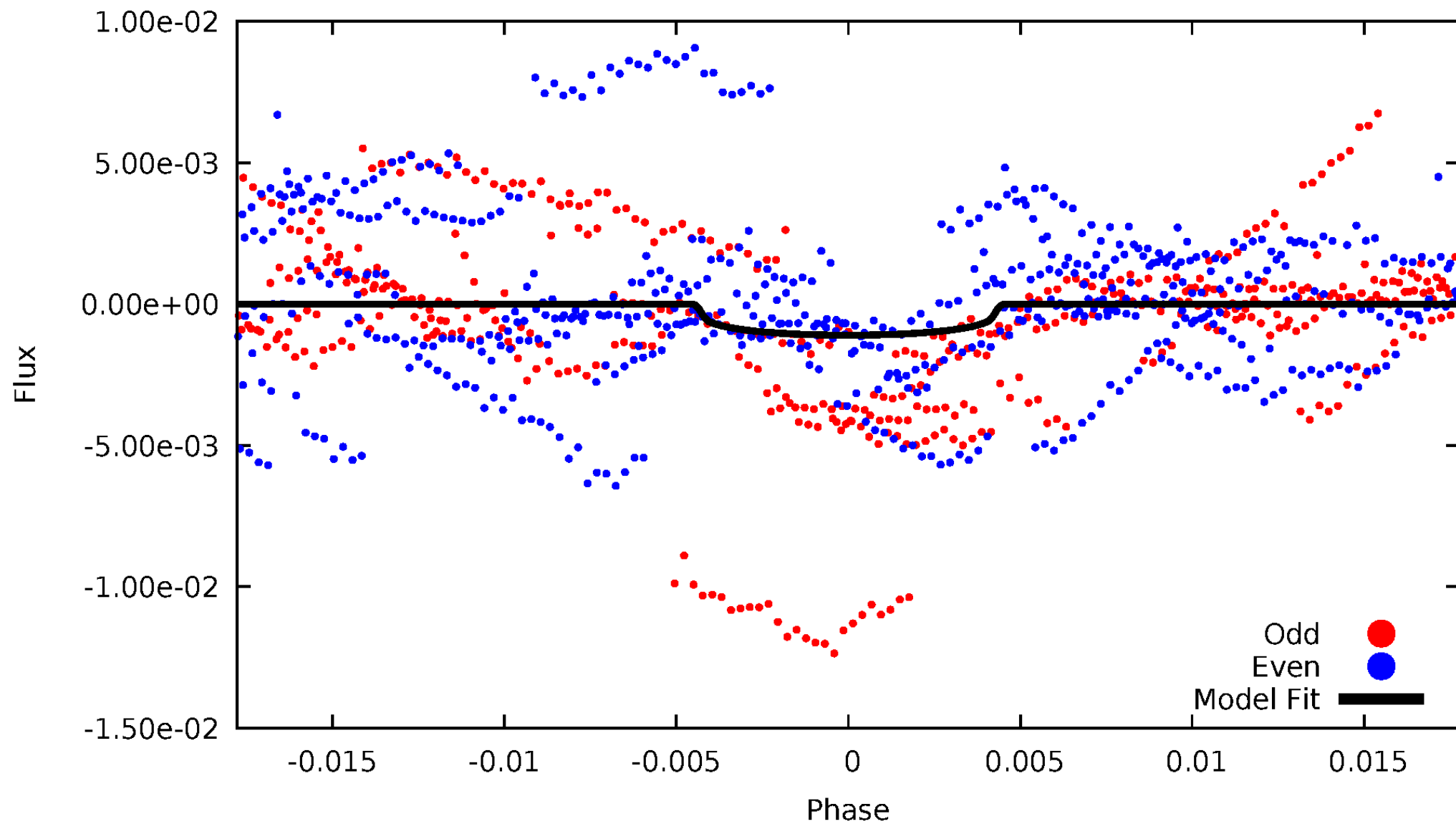


# TCE 011036972-07



# DV Odd/Even

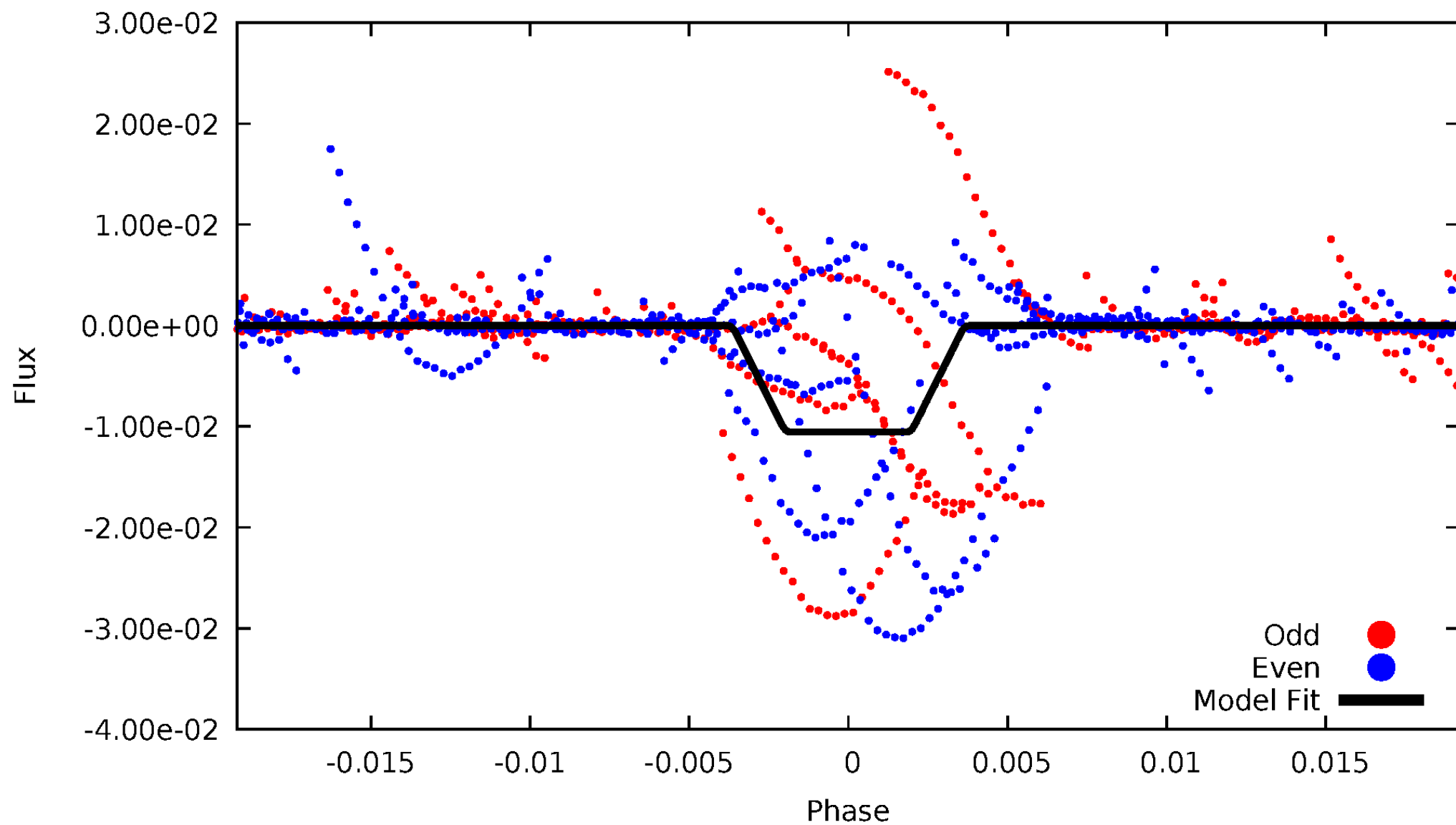
TCE 011036972-07





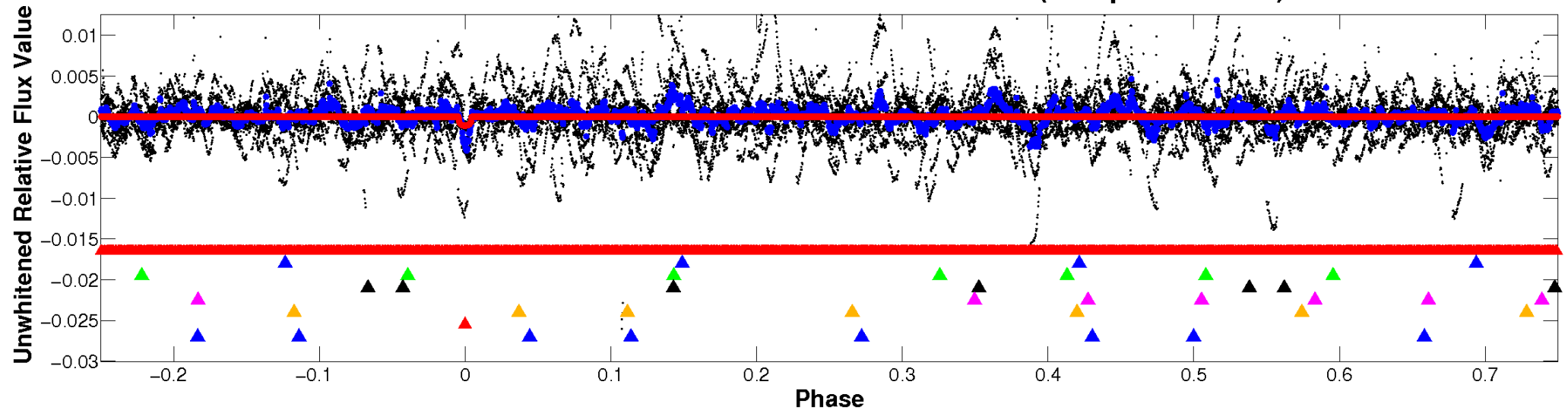
# ALT Odd/Even

TCE 011036972-07

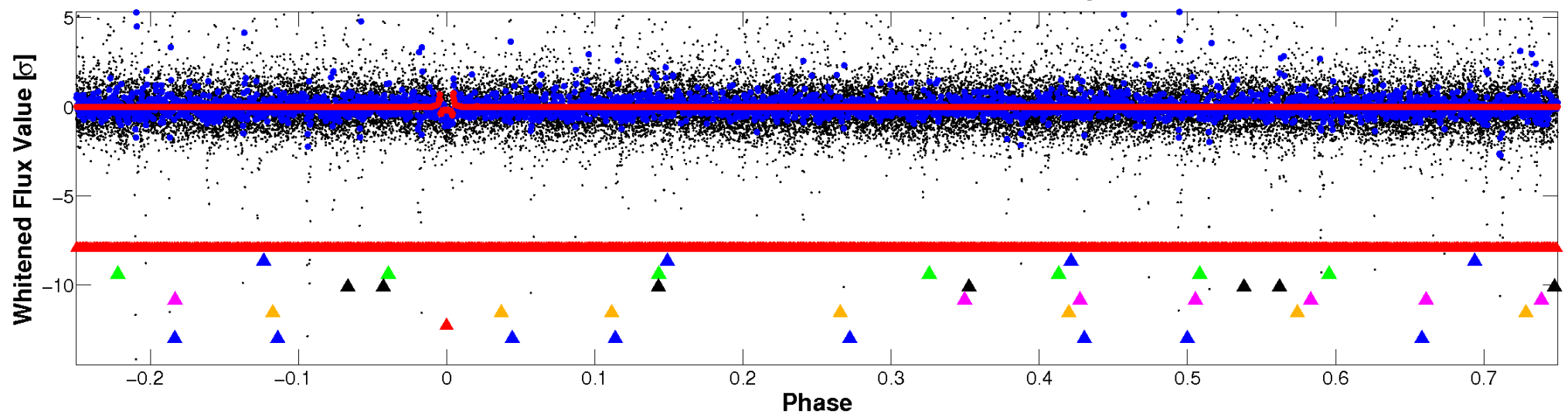


# Non-Whitened Vs. Whitened Light Curve

## Planet 7 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

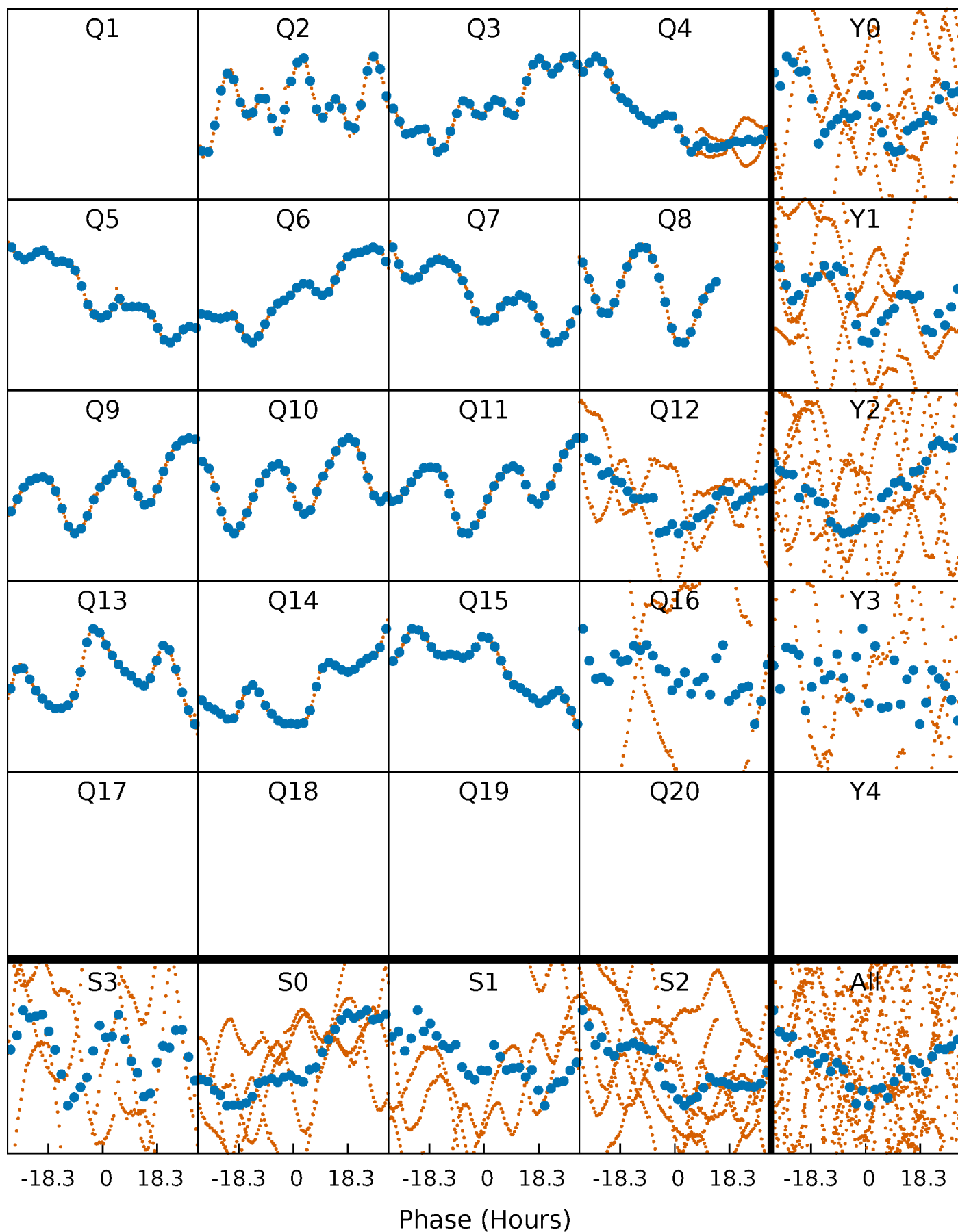


## Planet 7 : Phased Whitened Flux Time Series (Fit Epoch/Period)



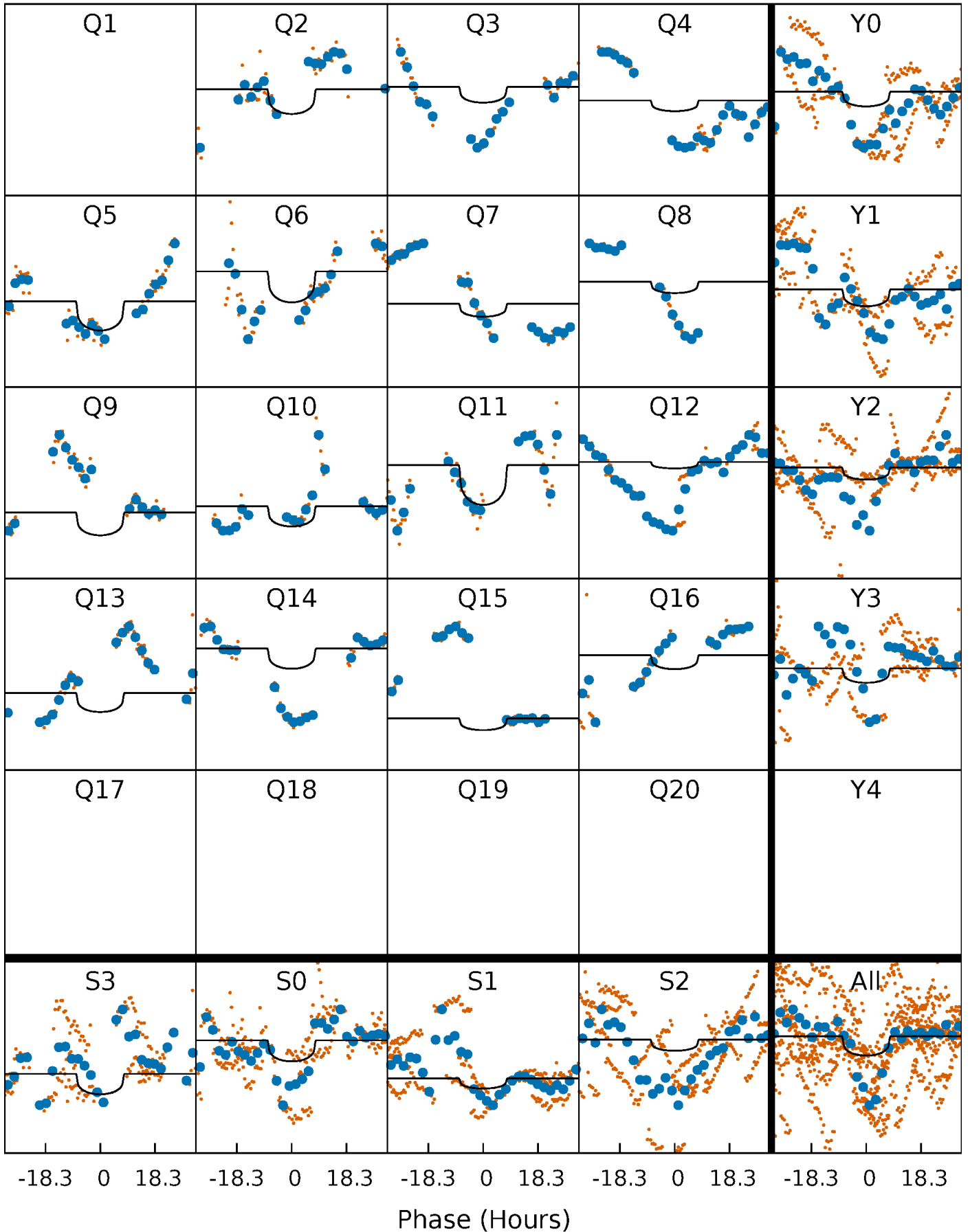
# PDC Quarter-Phased Transit Curves

TCE 011036972-07     $P = 74.943778$  Days     $T_0 = 202.204954$  (BKJD)



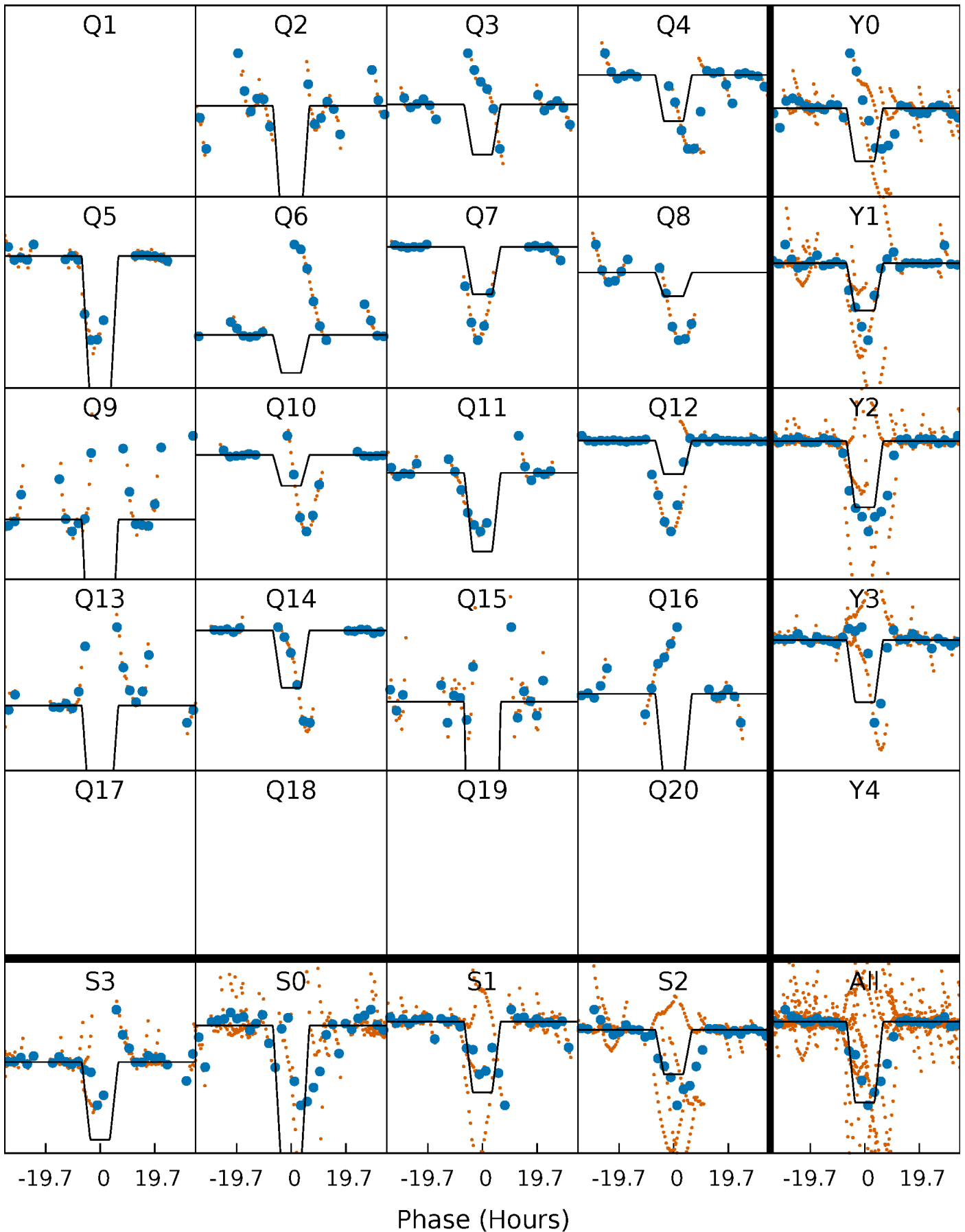
# DV Quarter-Phased Transit Curves

TCE 011036972-07     $P = 74.943778$  Days     $T_0 = 202.204954$  (BKJD)



# Alt. Detrend Quarter-Phased Transit Curves

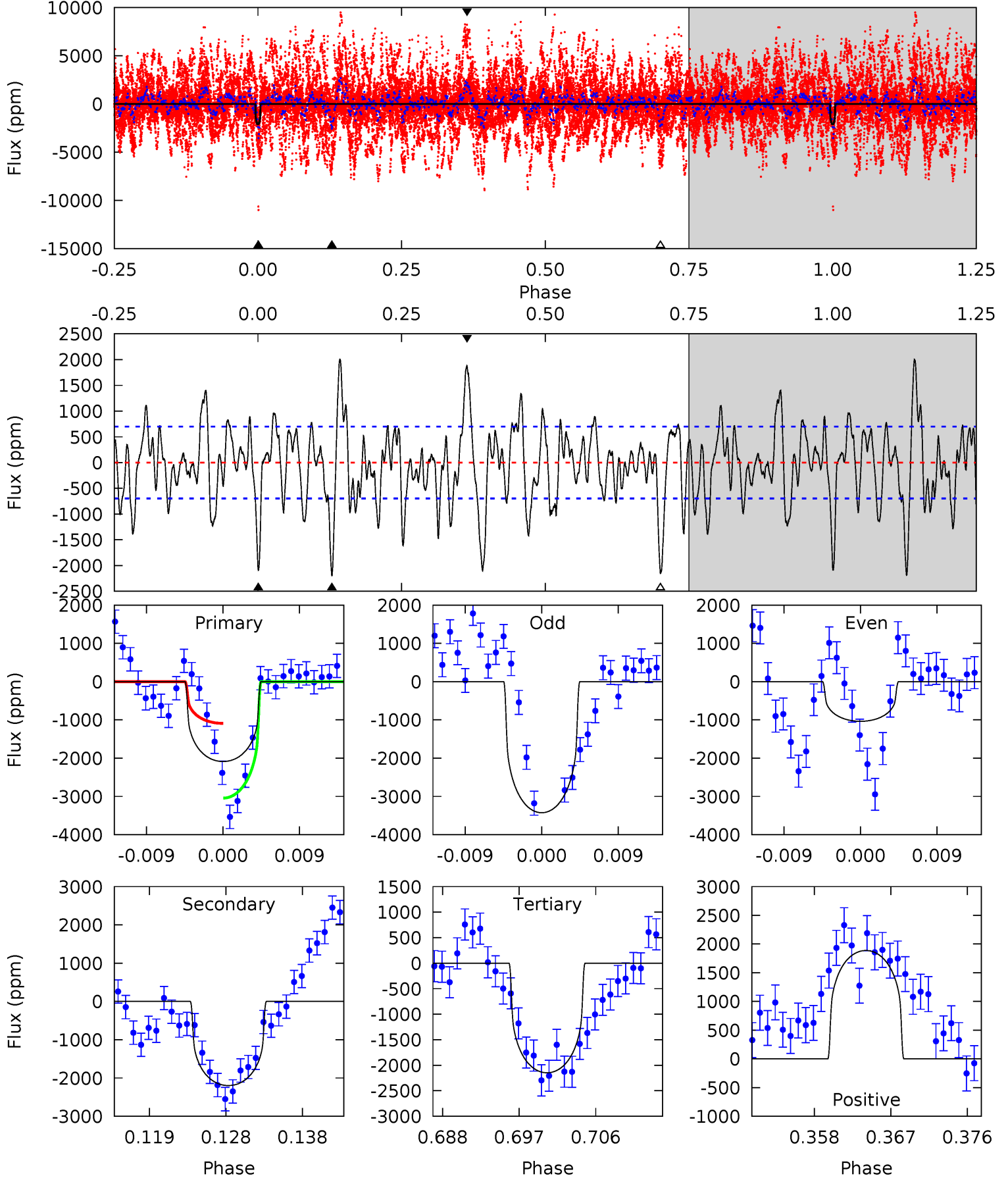
TCE 011036972-07     $P = 74.937311$  Days     $T_0 = 202.246491$  (BKJD)



# DV Model-Shift Uniqueness Test

011036972-07,  $P = 74.943778$  Days,  $E = 127.261176$  Days

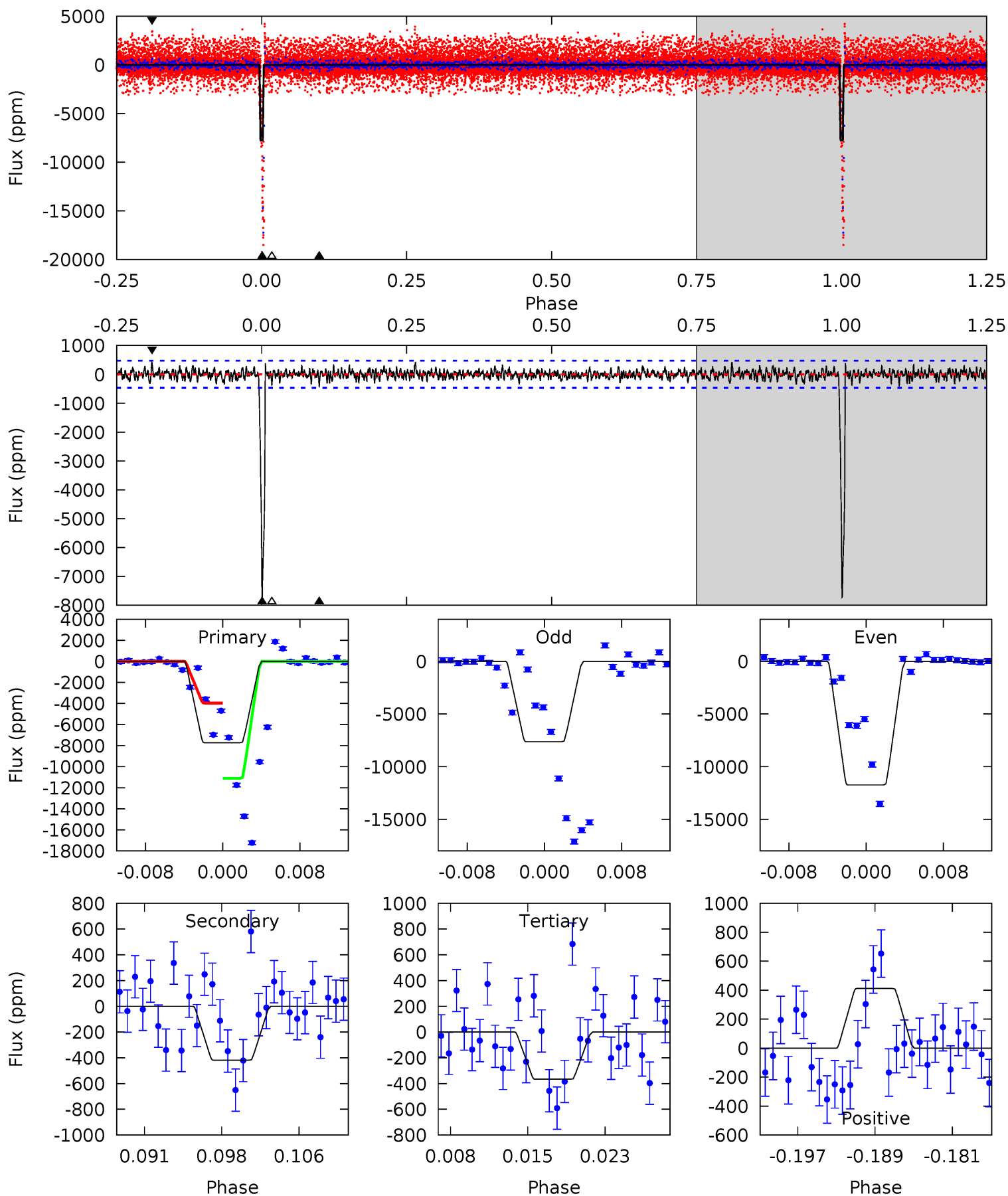
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
15.1	15.9	15.5	13.6	5.04	2.61	4.75	-0.43	1.45	0.36	2.23	8.65	0.99	0.48	7.12



# Alt Model-Shift Uniqueness Test

011036972-07, P = 74.937311 Days, E = 127.309180 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
83.3	4.51	3.95	4.44	5.08	2.67	1.20	79.4	78.9	0.57	0.07	20.2	-0.02	0.05	38.3



### Stellar Parameters For KIC 011036972

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4955^{+137}_{-1}$	$3.436^{+0.300}_{-0.300}$	$-0.280^{+0.300}_{-0.200}$	$2.977^{+1.638}_{-0.882}$	$0.882^{+0.290}_{-0.134}$	$0.047^{+0.088}_{-0.030}$
	+3%/-0%	+9%/-9%	+107%/-71%	+55%/-30%	+33%/-15%	+186%/-64%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 011036972-07 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{\text{max}} (K)$	$T_{\text{obs}} (K)$	$A_{\text{obs}}$
DV	$-2197 \pm 139$	$9.53^{+4.24}_{-2.93}$	$906^{+113}_{-91}$	$6056^{+1164}_{-695}$	$1537^{+1541}_{-801}$
Alt.	$-418 \pm 93$	$33.11^{+10.36}_{-6.22}$	$905^{+112}_{-93}$	$2872^{+128}_{-121}$	$24^{+14}_{-9}$

$T_{\text{max}}$  = Theoretical Maximum Planetary Temperature  
 $T_{\text{obs}}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )  
 $A_{\text{obs}}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{\text{obs}} \gg T_{\text{max}}$  AND  $A_{\text{obs}} \gg 1.0$



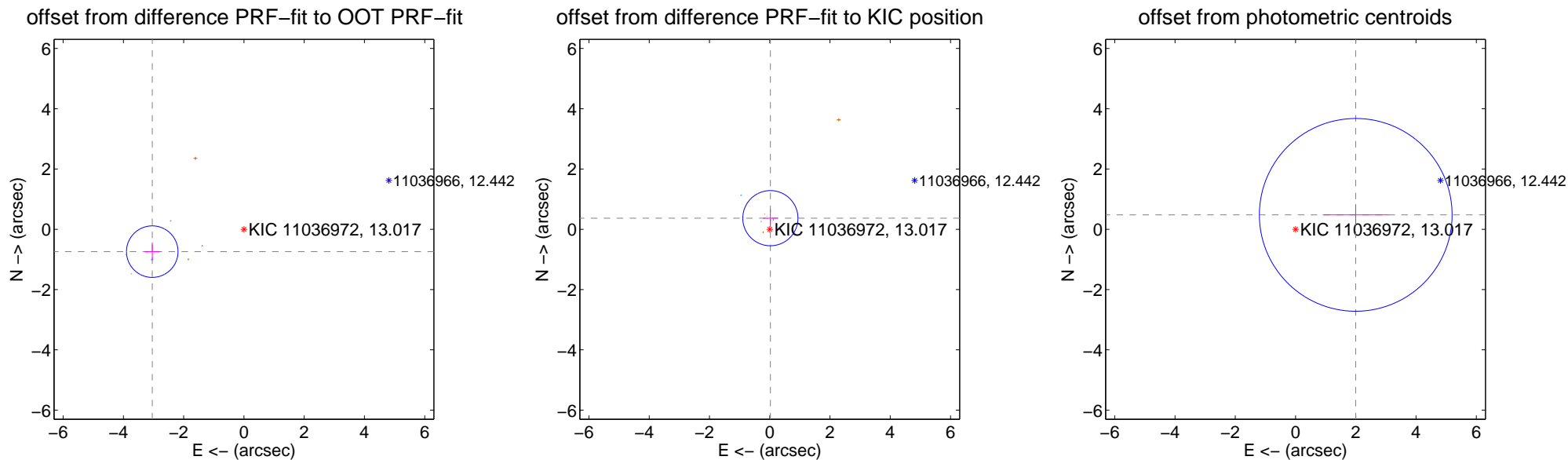
## DV Centroid Data

Supplemental centroid analysis for 011036972-07. Kepler magnitude: 13.02. Transit SNR 5.82

There are 6 quarters with good PRF difference image offsets

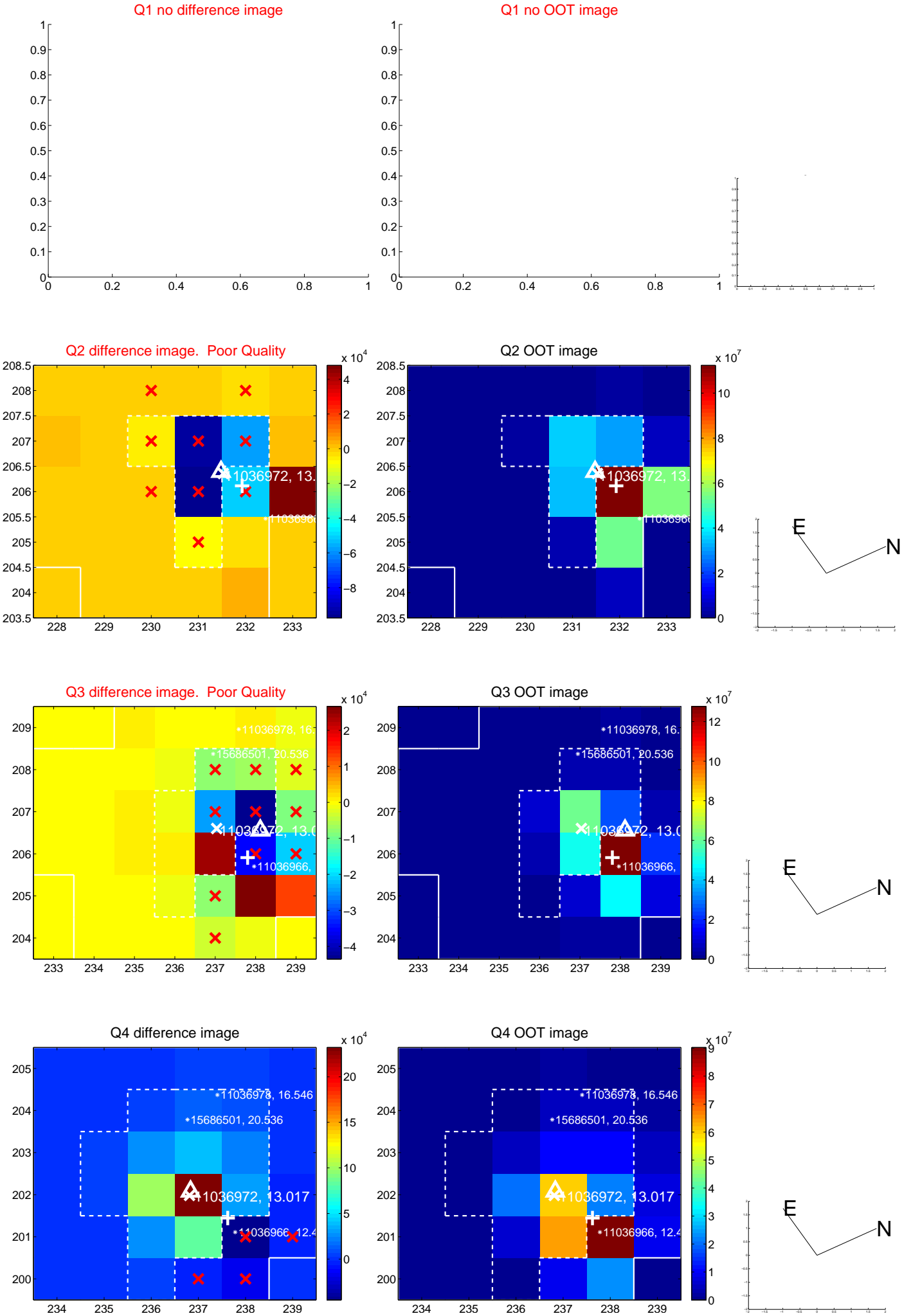
The OOT PRF centroid is offset from the target star catalog position by about 3.49 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	<b>3.132 <math>\pm</math> 0.285</b>	<b>10.99</b>	3.043 $\pm$ 0.251	-0.741 $\pm$ 0.301
PRF-fit source offset from KIC position	0.369 $\pm$ 0.305	1.21	-0.021 $\pm$ 0.239	0.369 $\pm$ 0.294
photometric centroid source offset	2.05 $\pm$ 1.07	1.93	-2.00 $\pm$ 1.09	0.48 $\pm$ 0.35

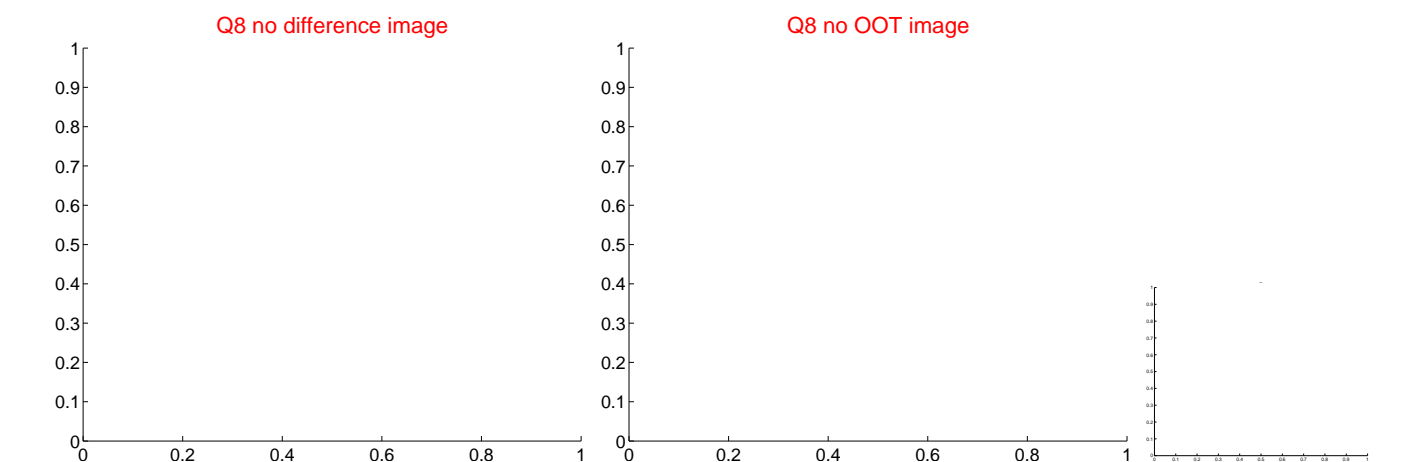
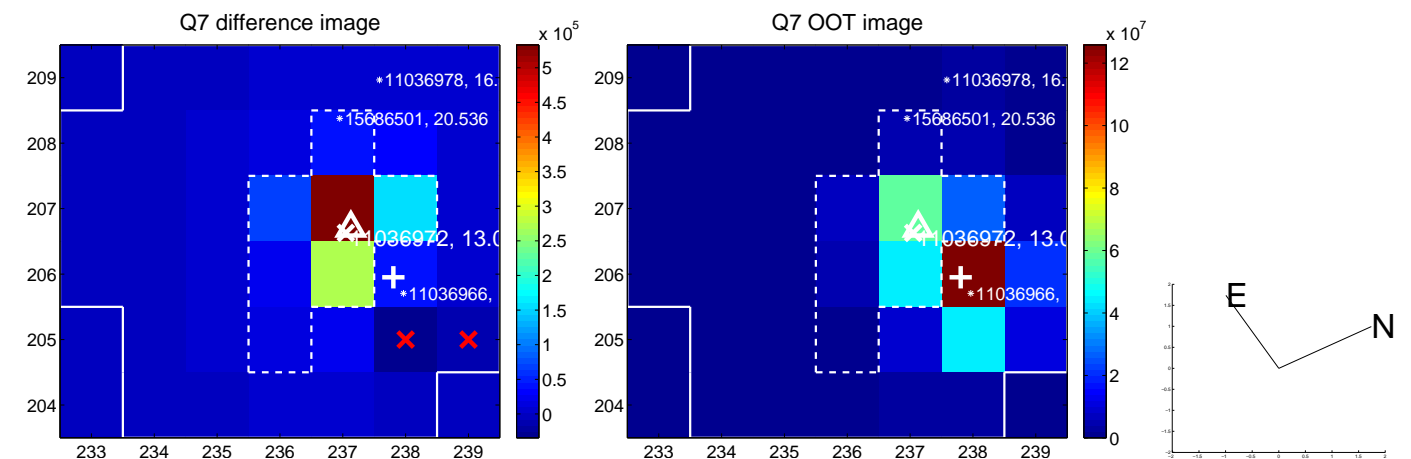
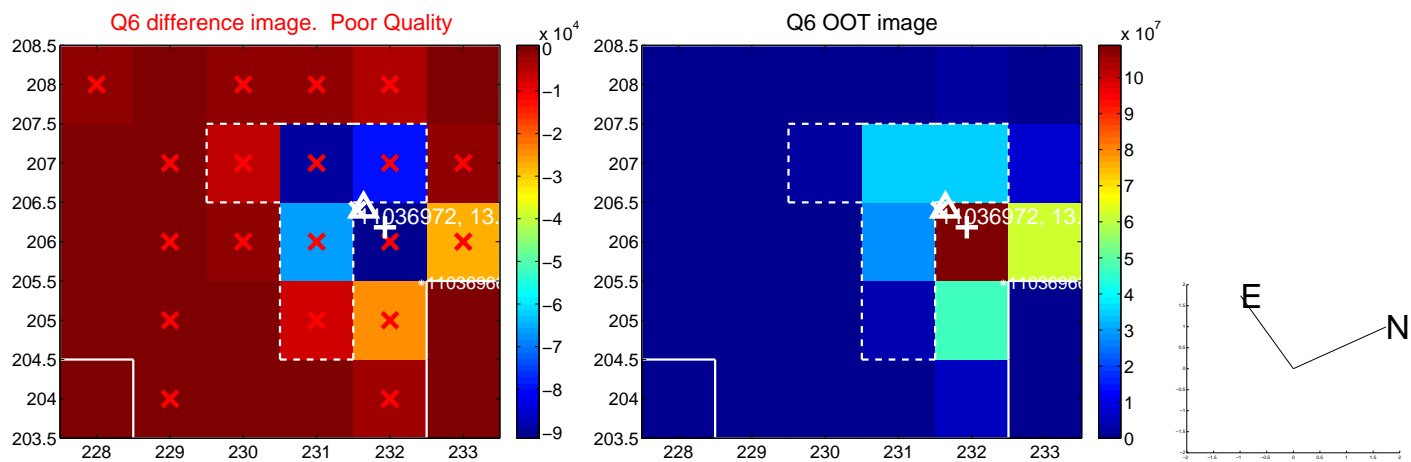
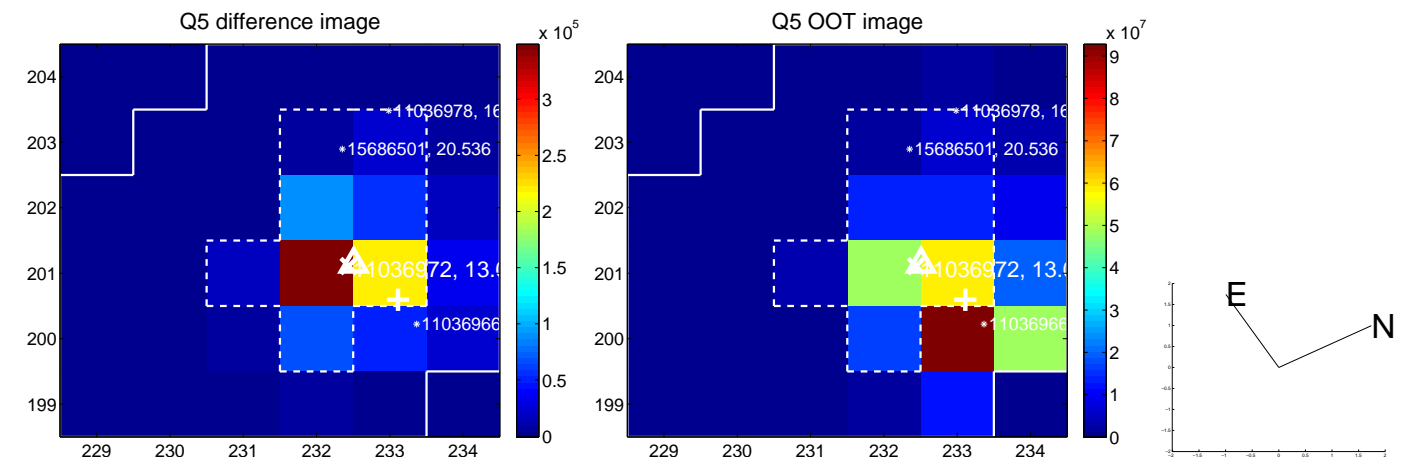


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

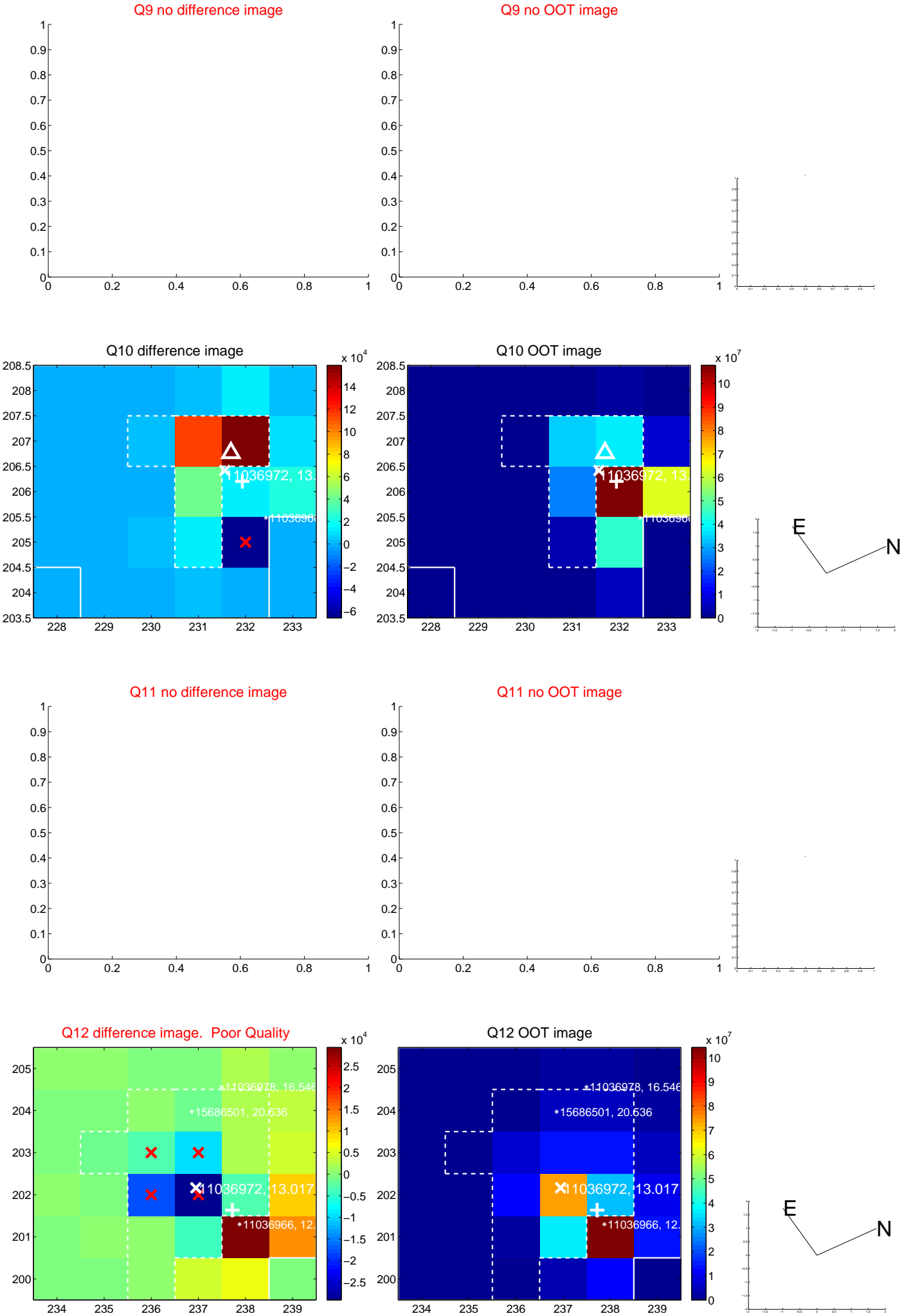
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



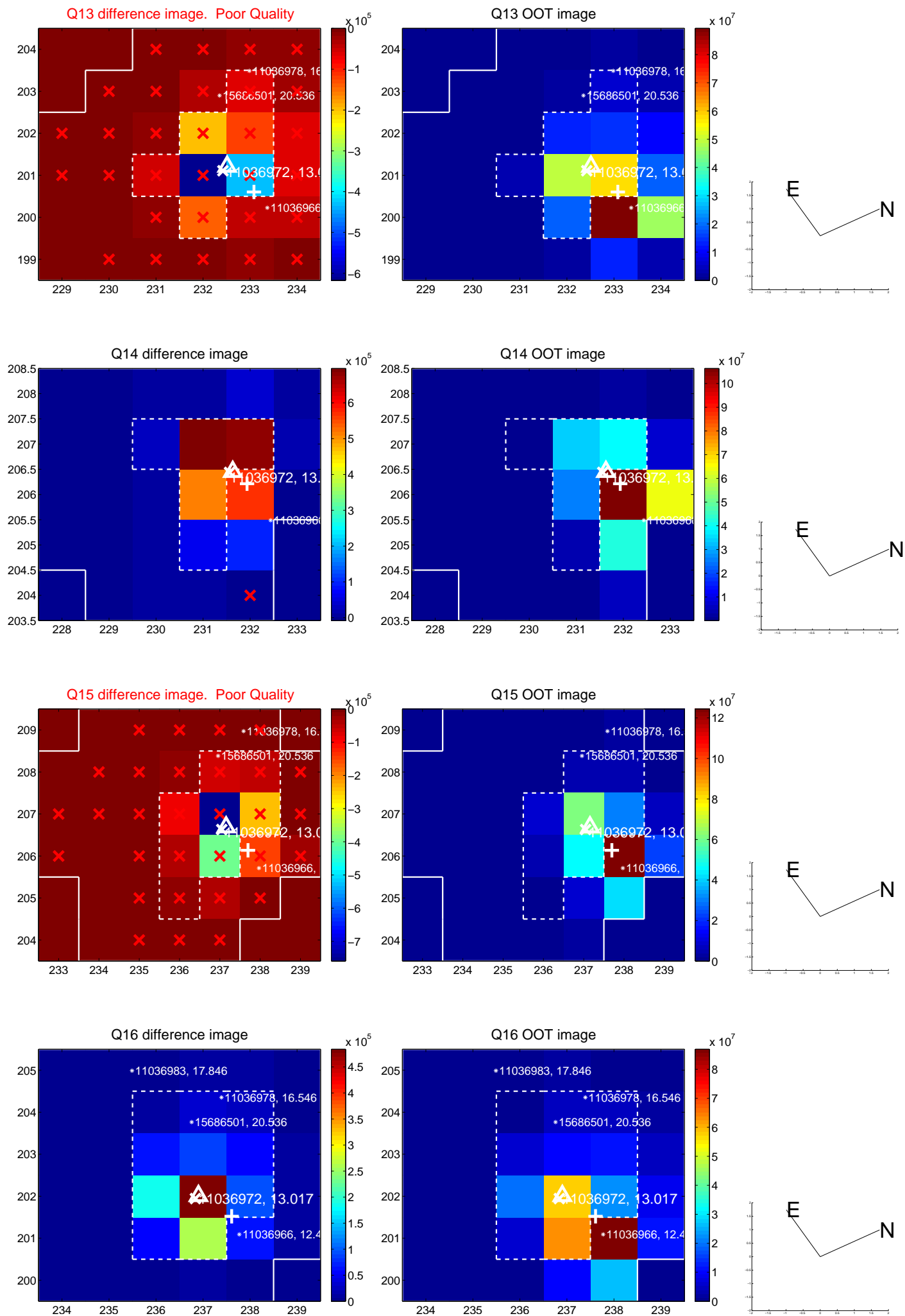
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



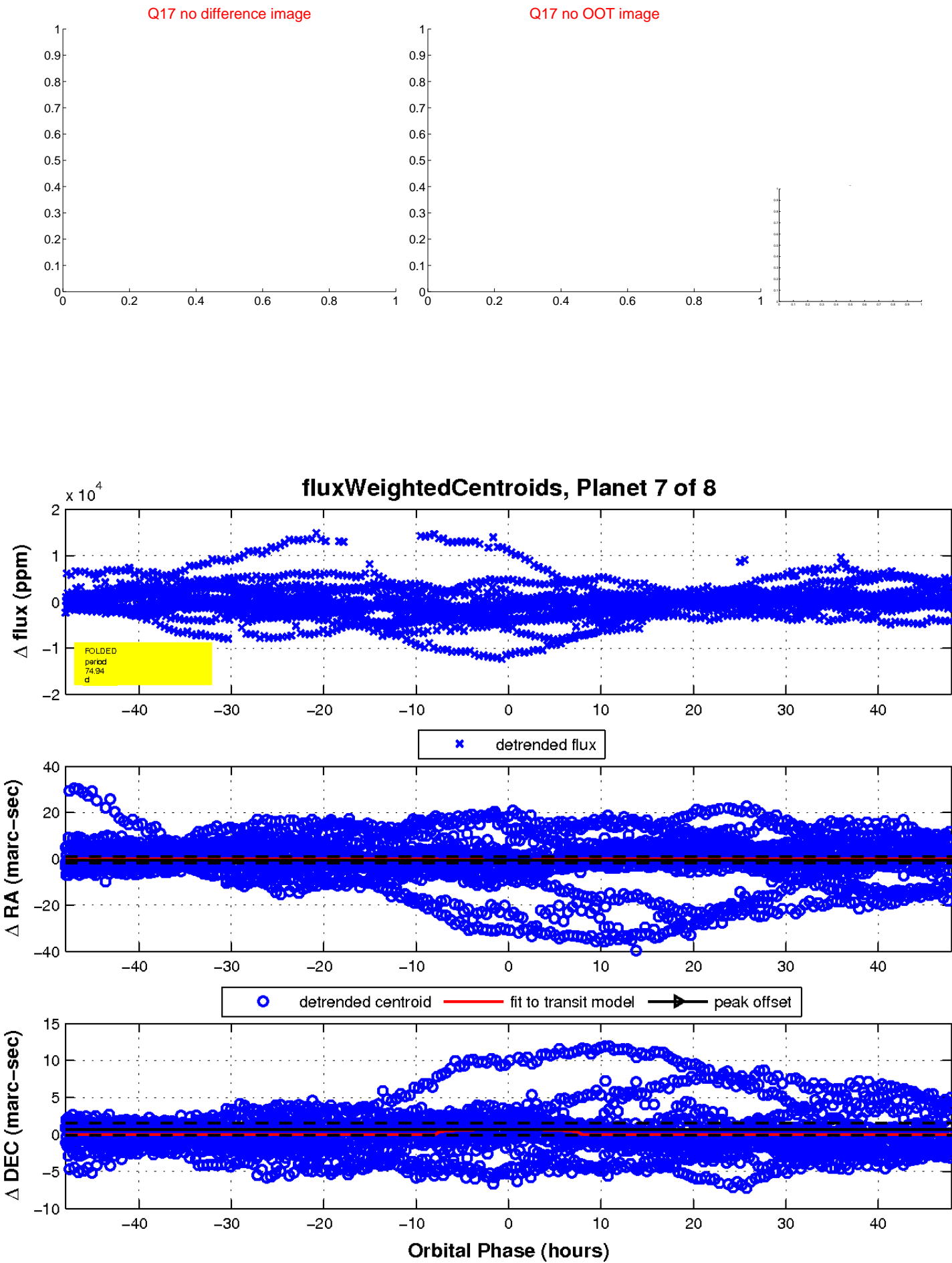
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



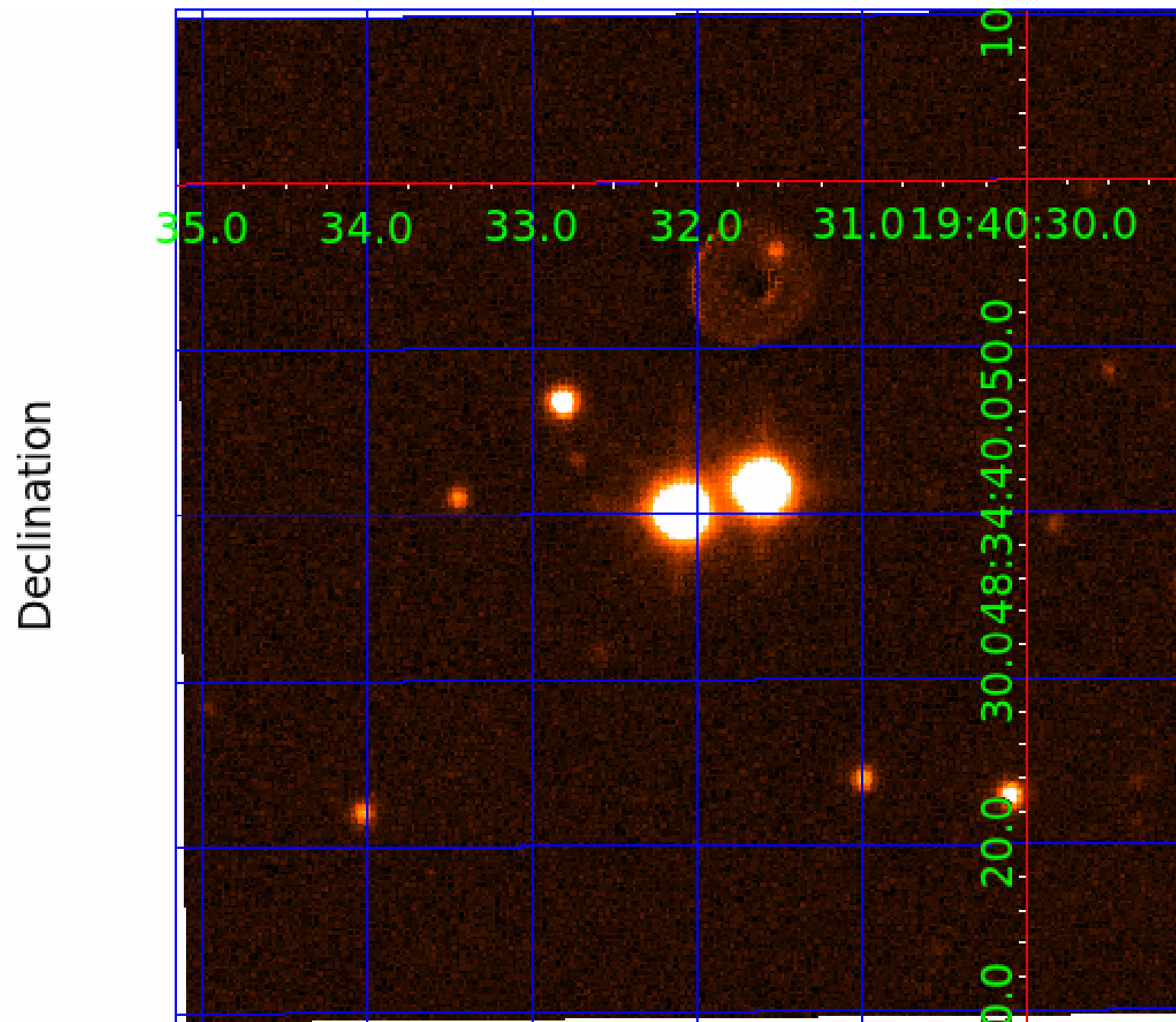
white  $\times$ : KIC target position; +: OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



UKIRT Image



# KIC 011036972

## Q1-17 DR25 TCE Parameters

TCE	Run Type	KOI?	Period (Days)	Epoch (BKJD)	Depth (ppm)	Duration (Hours)	MES	SNR	$R_{\star}$ ( $R_{\odot}$ )	$T_{\star}$ (K)	$R_p$ ( $R_{\oplus}$ )	$S_p$ ( $S_{\oplus}$ )
011036972-01	OBS	No	1.020557	131.809893	71.6	3.740	15.7	7.5	2.98	4955	3.07	13217.17
011036972-02	OBS	No	429.246246	179.262160	1289.7	6.874	14.0	4.3	2.98	4955	10.40	4.19
011036972-03	OBS	No	211.151208	165.355494	7.9	1.293	13.4	0.1	2.98	4955	0.98	10.80
011036972-04	OBS	No	195.212733	272.157520	1557.8	3.014	12.2	7.2	2.98	4955	11.57	11.99
011036972-05	OBS	No	218.996531	188.473447	2128.3	16.978	10.6	5.3	2.98	4955	16.93	10.29
011036972-06	OBS	No	213.271097	204.974825	807.5	4.853	11.3	3.9	2.98	4955	8.26	10.66
011036972-07	OBS	No	74.943778	202.204954	1102.9	15.979	9.6	5.8	2.98	4955	9.70	42.98
011036972-08	OBS	No	178.823053	210.737521	1175.6	5.577	11.6	5.7	2.98	4955	10.79	13.48

## Robovetter Results

TCE	Run Type	Disp	Score	N	S	C	E	Comments
011036972-01	OBS	FP	0.00	1	0	0	0	SWEET_NTL—LPP_DV—MOD_NONUNIQ_DV—CENT_FEW_DIFFS
011036972-02	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES—LPP_DV—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_KIC_POS
011036972-03	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV— MOD_NONUNIQ_ALT—MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS
011036972-04	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_CHASES_MARSHALL—TRANS_GAPPED—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_POS_DV—MOD_NONUNIQ_ALT— MOD_TER_ALT—MOD_POS_ALT—INCONSISTENT_TRANS—CENT_KIC_POS—HALO_GHOST
011036972-05	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE—TRANS_GAPPED—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS—HALO_GHOST
011036972-06	OBS	FP	0.00	1	0	0	0	INDIV_TRANS_RUBBLE_CHASES_MARSHALL_TRACKER—LPP_DV—LPP_ALT—ALL_TRANS_CHASES—MOD_NONUNIQ_DV—MOD_NONUNIQ_ALT—MOD_TER_ALT— MOD_POS_ALT—CENT_KIC_POS
011036972-07	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_ZUMA—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—CENT_KIC_POS—HALO_GHOST
011036972-08	OBS	FP	0.00	1	0	1	0	INDIV_TRANS_RUBBLE_SKYE—TRANS_GAPPED—LPP_DV—MOD_NONUNIQ_DV—MOD_TER_DV—MOD_POS_DV—INCONSISTENT_TRANS—CENT_NOFITS— HALO_GHOST

**Notes:** OBS = Observed. INJ = Injected. INV = Inverted. SCR = Scrambled.

N = Not Transit-Like. S = Stellar Eclipse. C = Centroid Offset. E = Ephemeris Match.

See [http://exoplanetarchive.ipac.caltech.edu/docs/API\\_kepcandidate\\_columns.html#proj\\_disp\\_col](http://exoplanetarchive.ipac.caltech.edu/docs/API_kepcandidate_columns.html#proj_disp_col) for comment definitions.

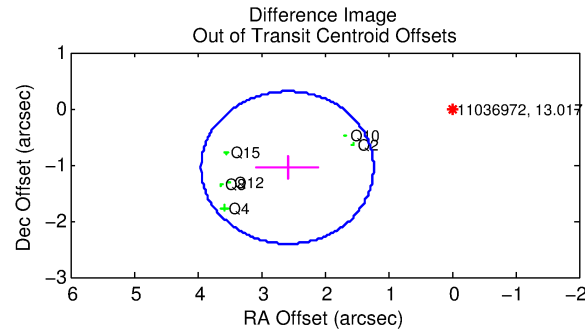
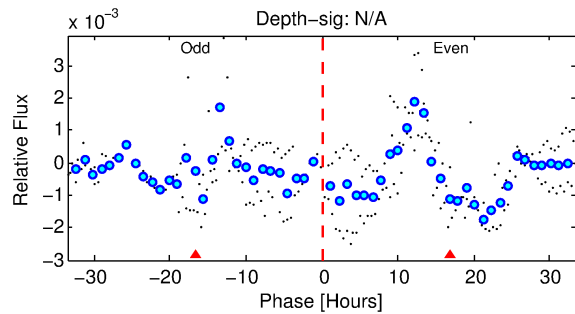
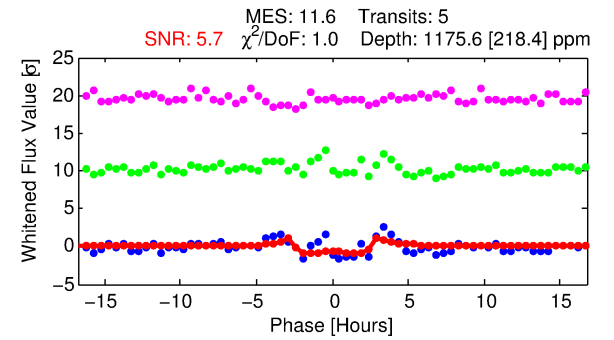
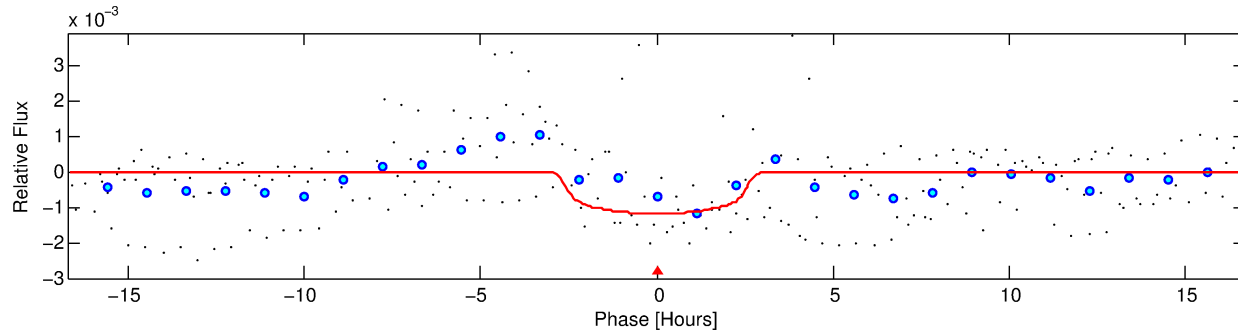
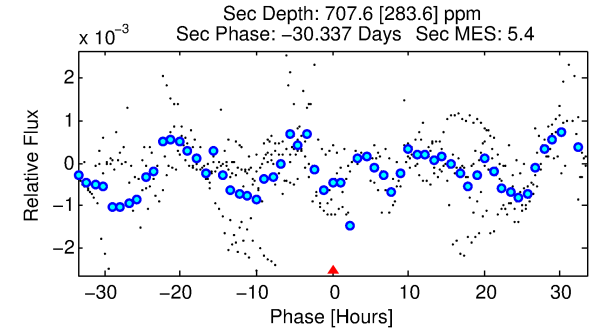
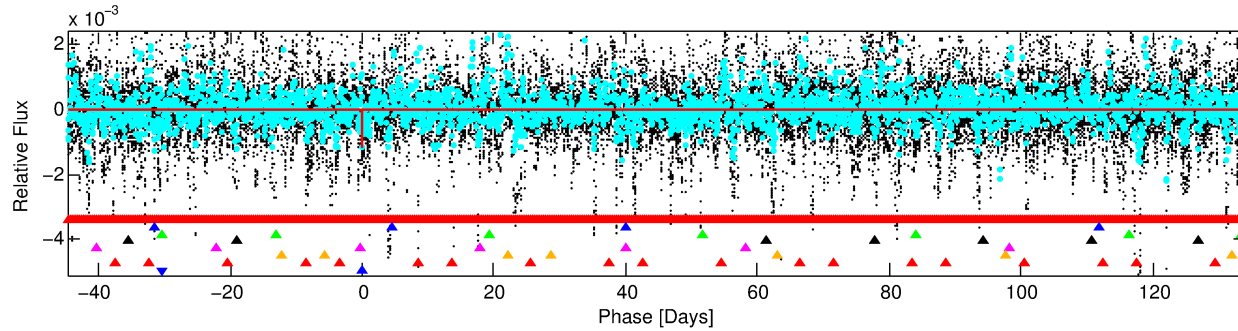
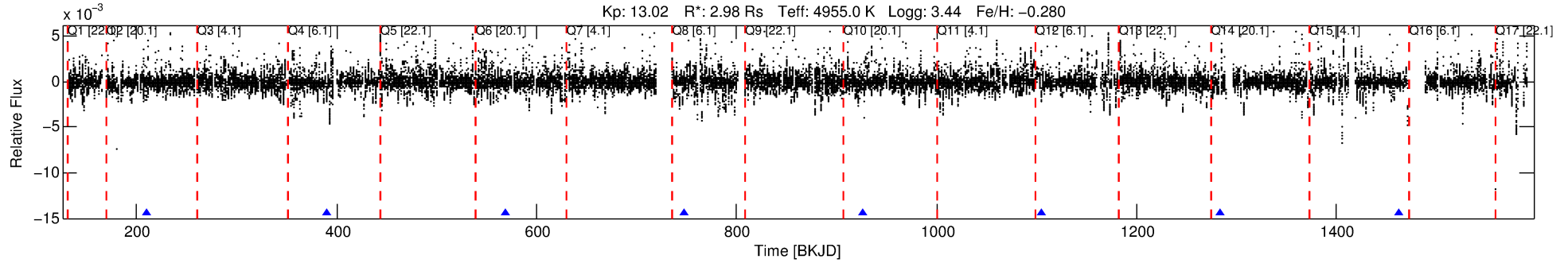
Ephemeris Match Information For 011036972-08

No Significant Match Found



# DV One-Page Summary

KIC: 11036972 Candidate: 8 of 8 Period: 178.823 d



## DV Fit Results:

Period = 178.82305 [0.00241] d  
Epoch = 210.7375 [0.0090] BKJD  
Rp/R\* = 0.0332 [0.0208]  
a/R\* = 191.43 [415.16]  
b = 0.68 [1.77]  
Seff = 13.48 [8.08]  
Teq = 489 [73] K  
Rp = 10.79 [8.99] Re  
a = 0.5959 [0.2581] AU  
Ag = 1187.44 [1710.33] [0.69] $\sigma$   
Teffp = 4434 [1462] K [2.69] $\sigma$

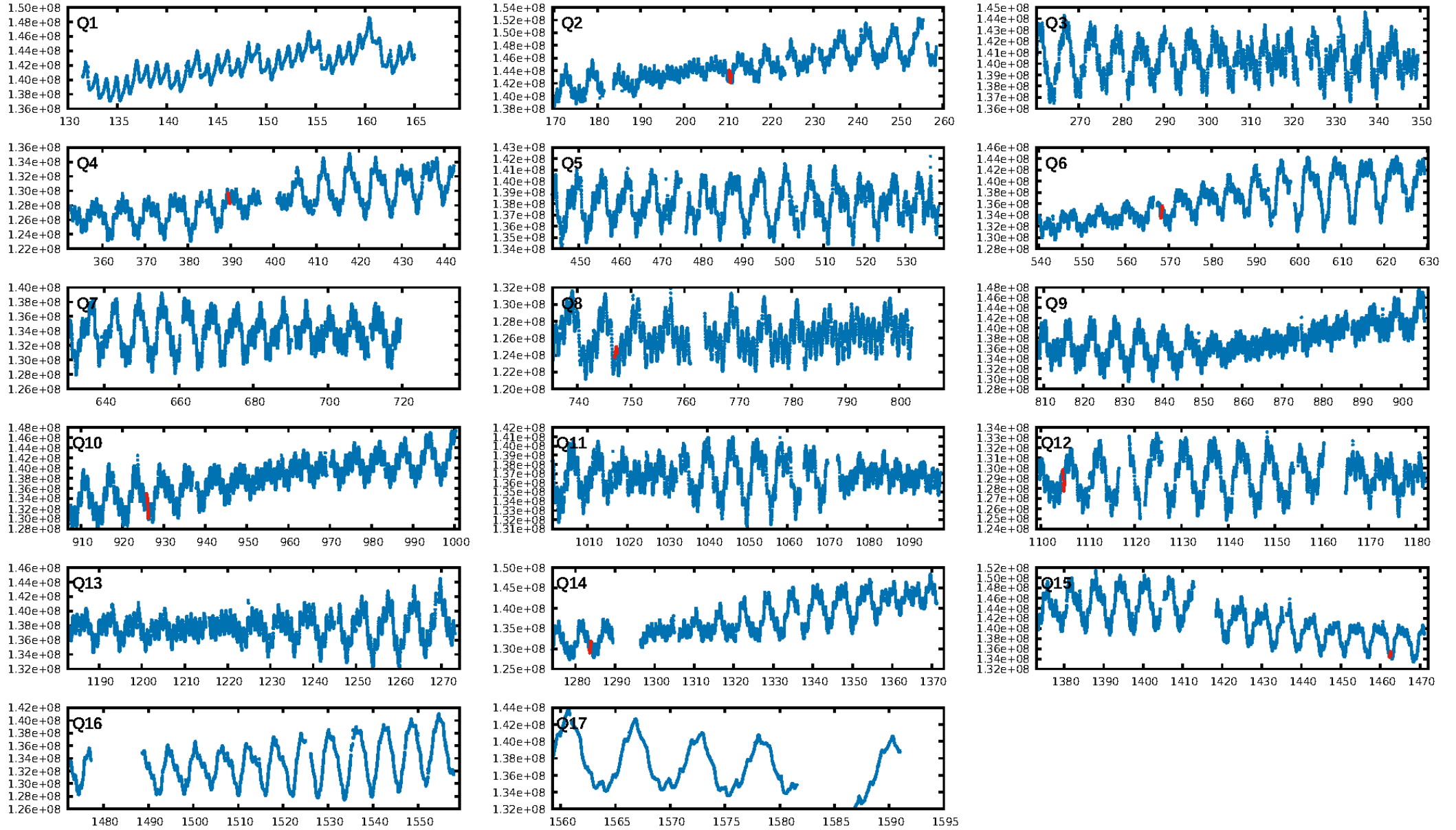
## DV Diagnostic Results:

ShortPeriod-sig: 100.0% [147.31] $\sigma$   
LongPeriod-sig: 100.0% [62.05] $\sigma$   
ModelChiSquare2-sig: 5.8%  
ModelChiSquareGof-sig: 100.0%  
Bootstrap-pfa: N/A  
RollingBand-fgt: 1.00 [5/5]  
GhostDiagnostic-chr: 0.0552  
Centroid-sig: 0.5%  
Centroid-so: 4.153 arcsec [4.31] $\sigma$   
OotOffset-rm: 2.792 arcsec [6.17] $\sigma$   
KicOffset-rm: 0.368 arcsec [3.95] $\sigma$   
OotOffset-st: 2/1/3/0 [6]  
KicOffset-st: 2/1/3/0 [6]  
DiffImageQuality-fgm: 0.50 [3/6]  
DiffImageOverlap-fno: 0.00 [0/6]

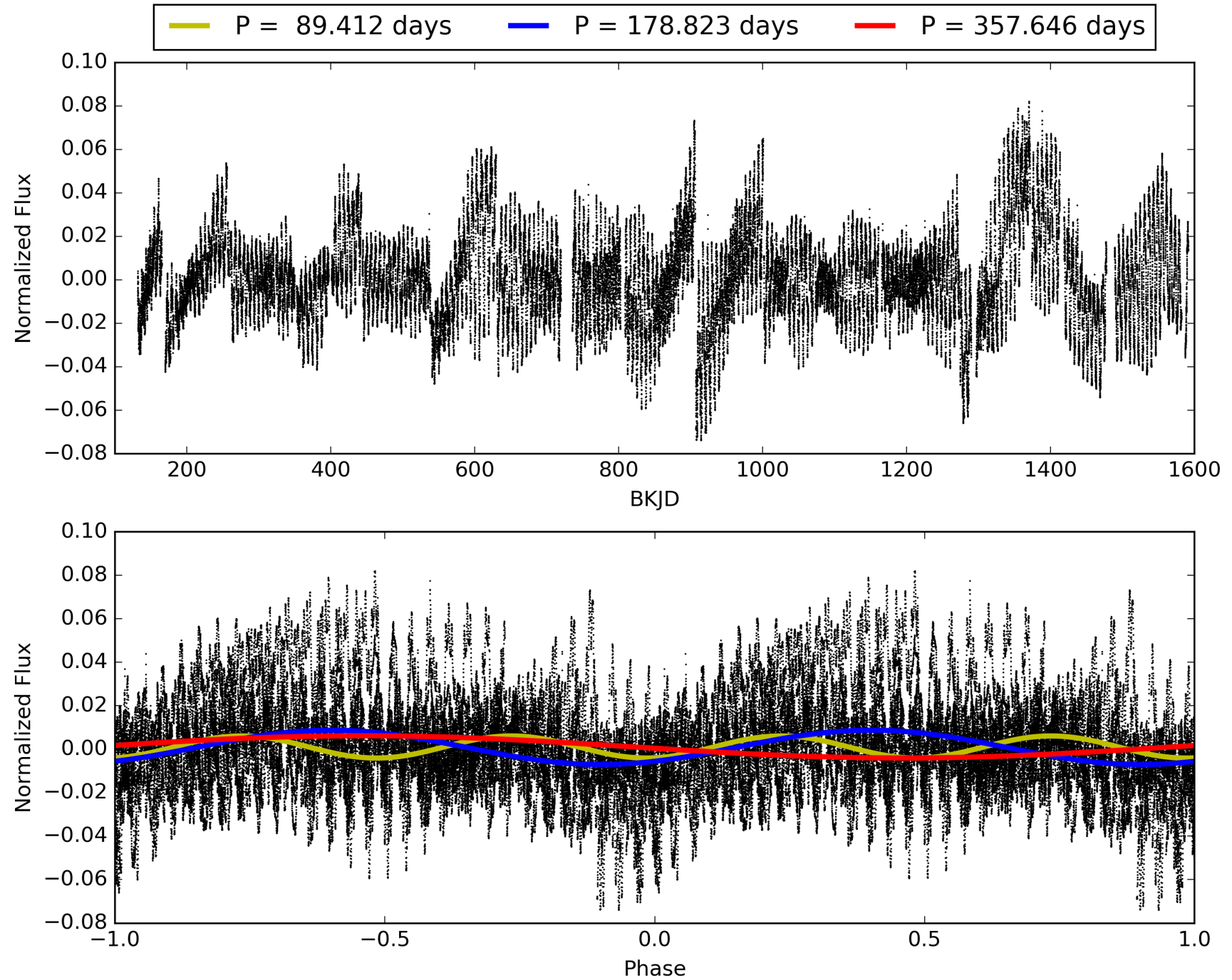
Software Revision: svn+ssh://murzim/repo/soc/tags/release/9.3.42@60958 -- Date Generated: 30-Jan-2016 06:15:26 Z

This Data Validation Report Summary was produced in the Kepler Science Operations Center Pipeline at NASA Ames Research Center

# TCE 011036972-08, PDC Light Curves

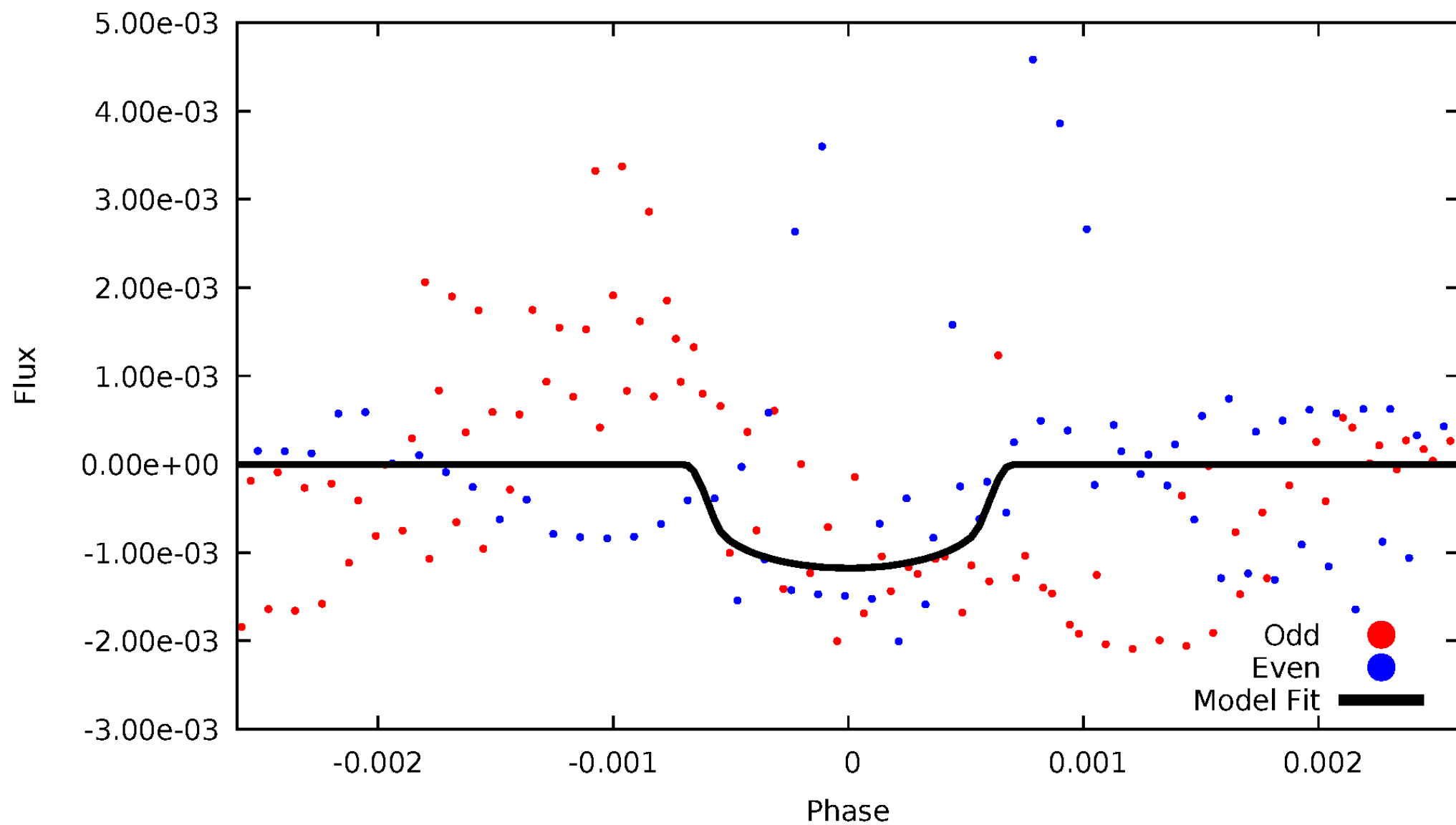


# TCE 011036972-08



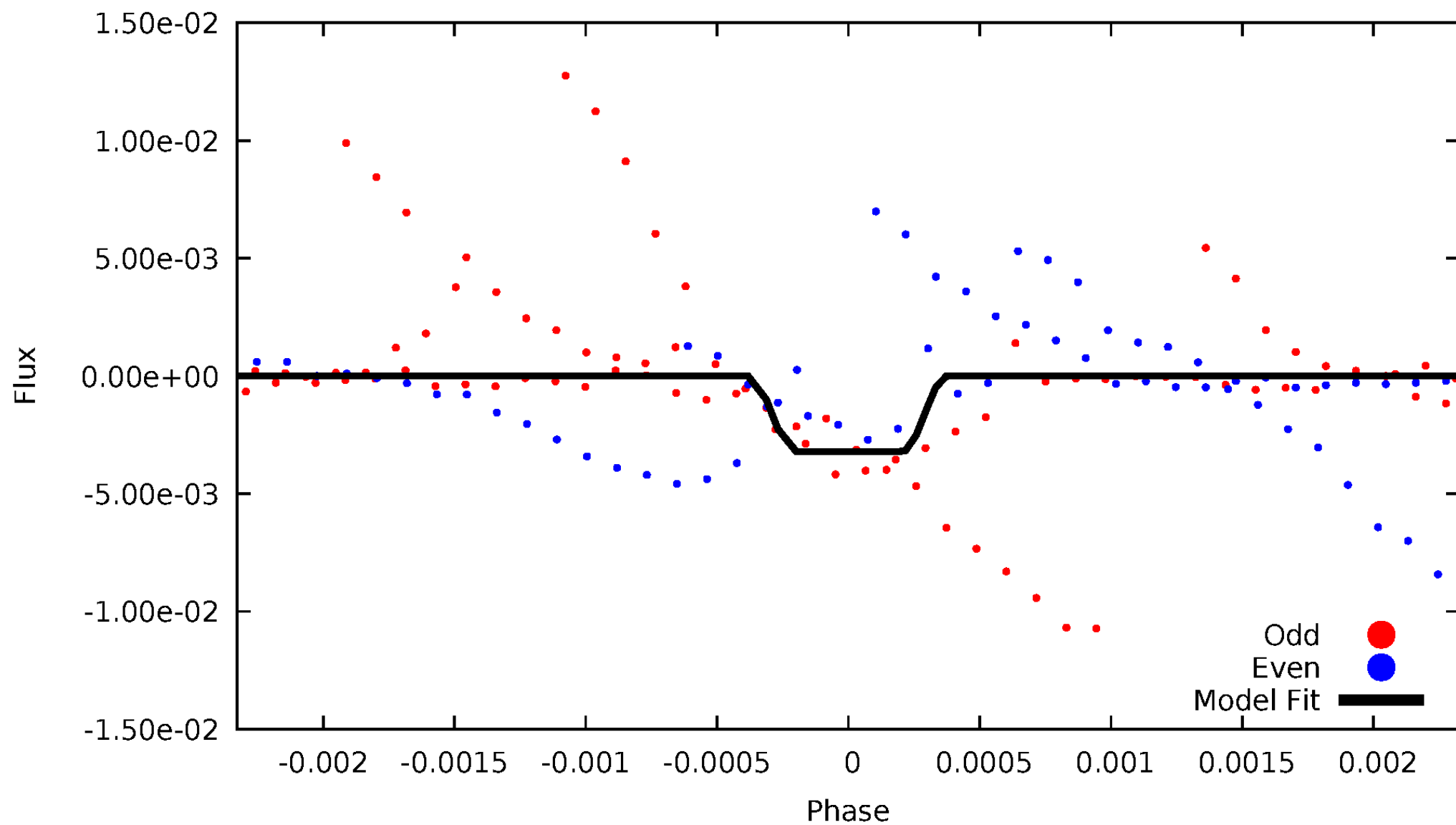
# DV Odd/Even

TCE 011036972-08



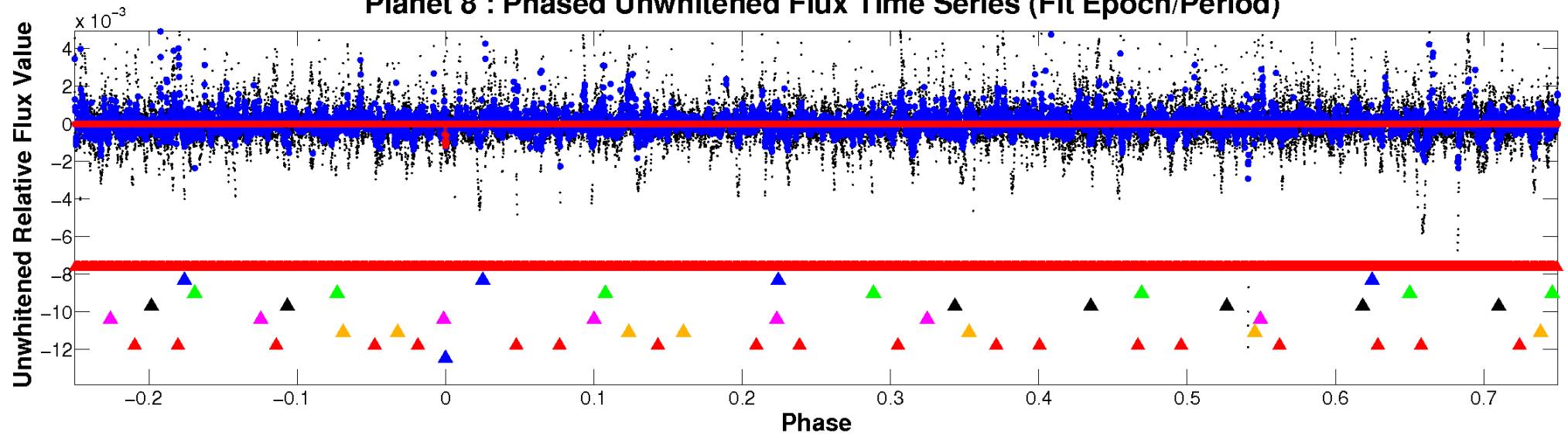
# ALT Odd/Even

TCE 011036972-08

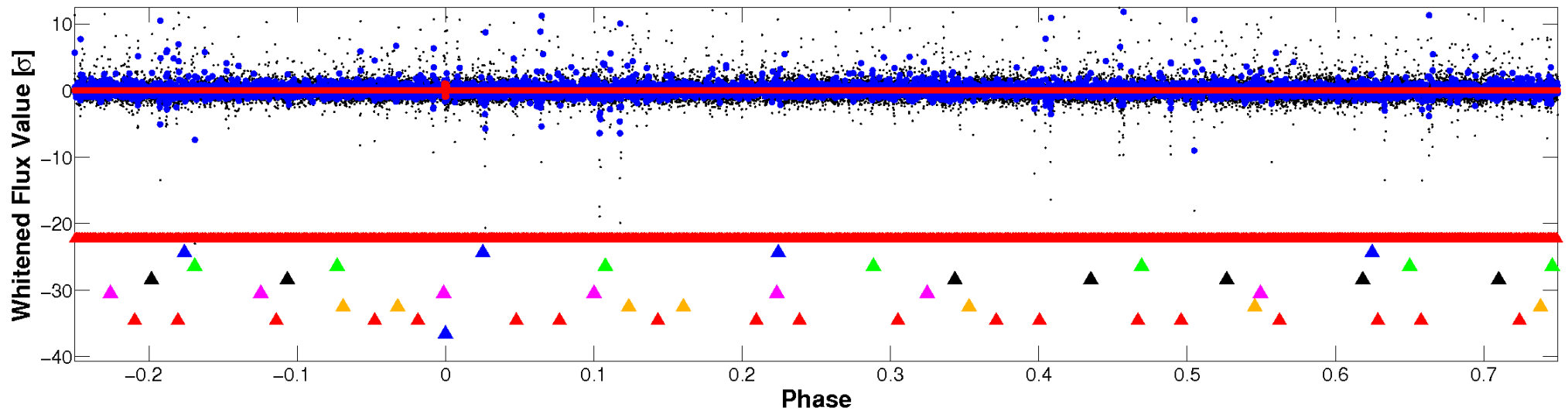


# Non-Whitened Vs. Whitened Light Curve

## Planet 8 : Phased Unwhitened Flux Time Series (Fit Epoch/Period)

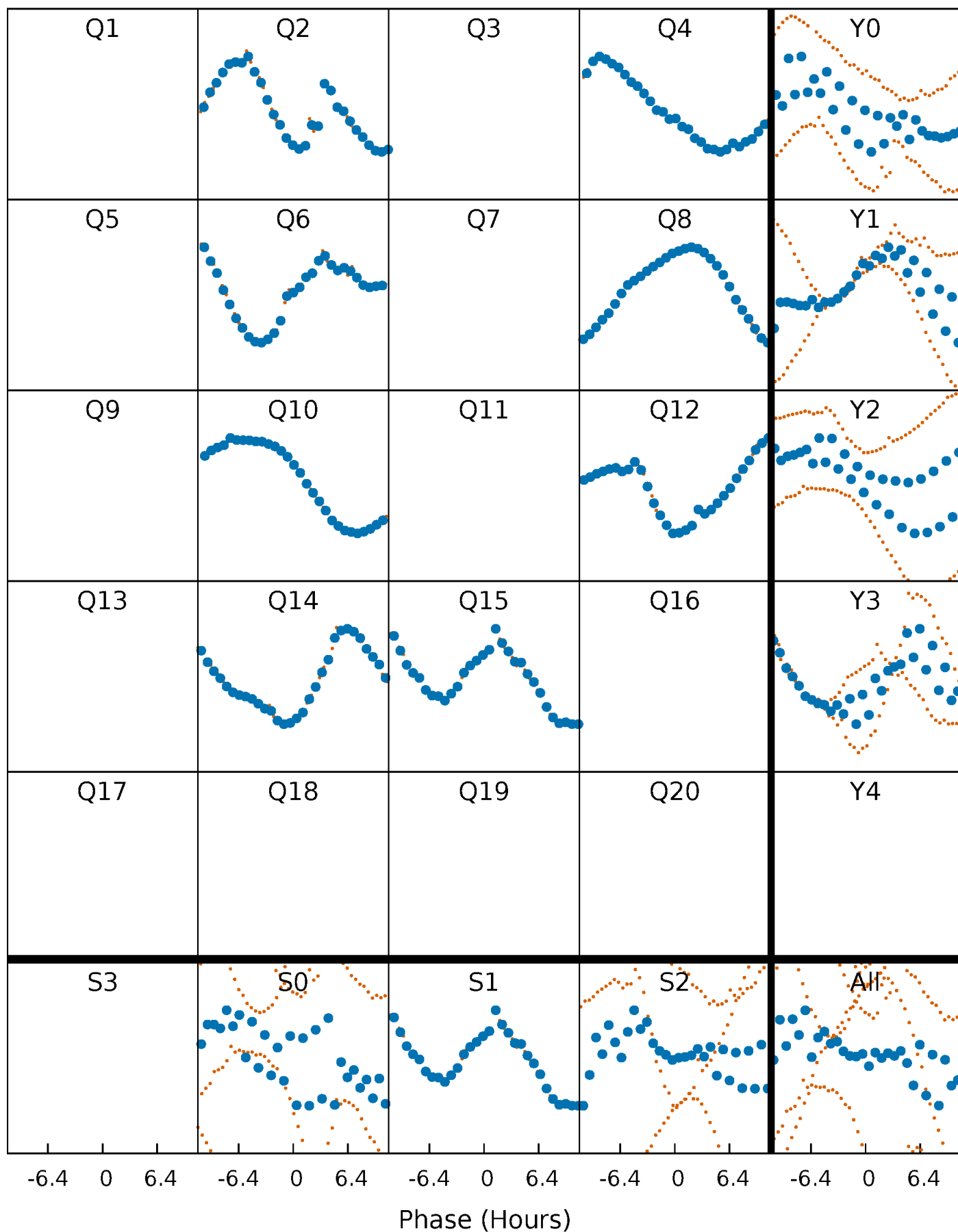


## Planet 8 : Phased Whitened Flux Time Series (Fit Epoch/Period)



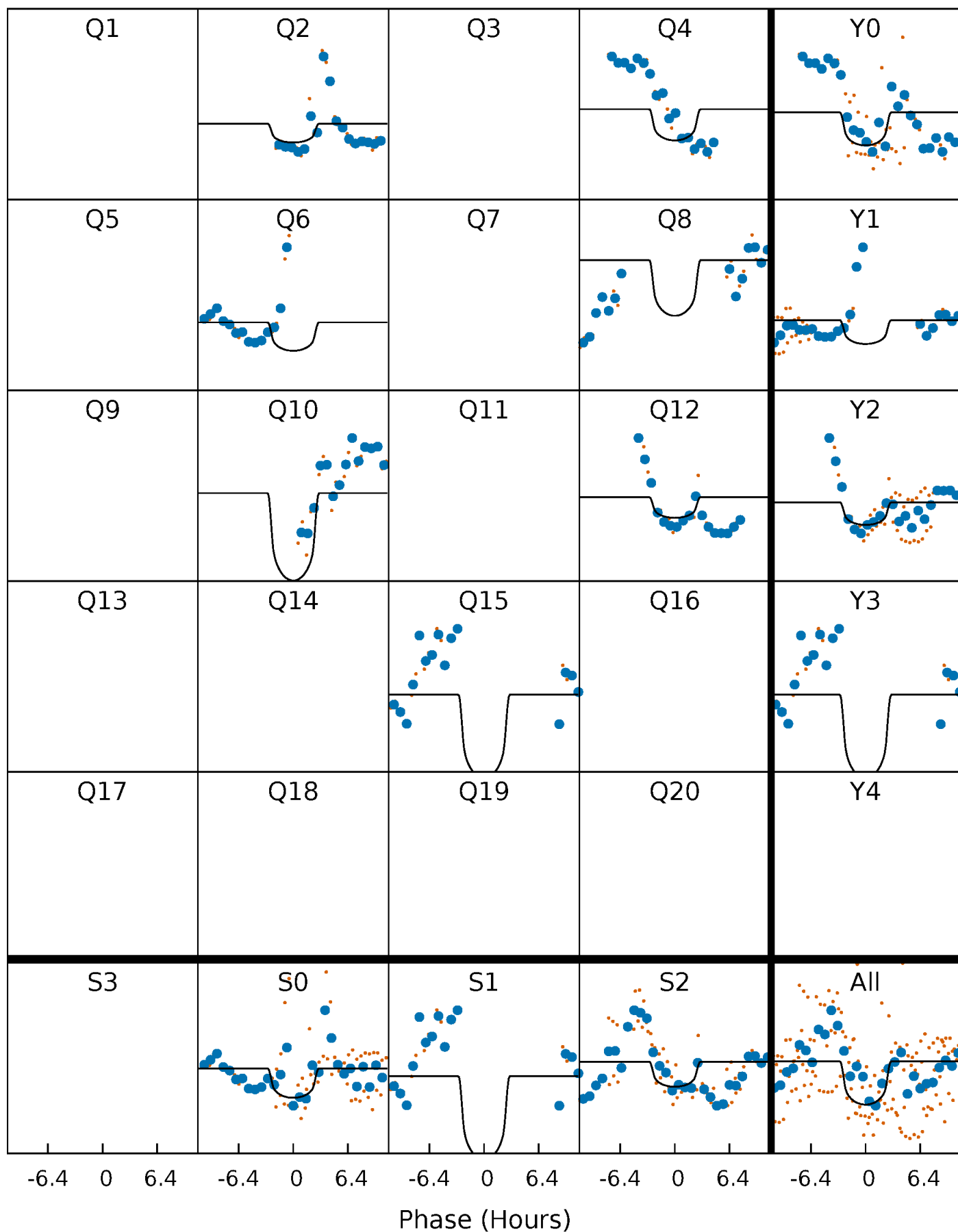
# PDC Quarter-Phased Transit Curves

TCE 011036972-08 P=178.823053 Days  $T_0=210.737522$  (BKJD)



# DV Quarter-Phased Transit Curves

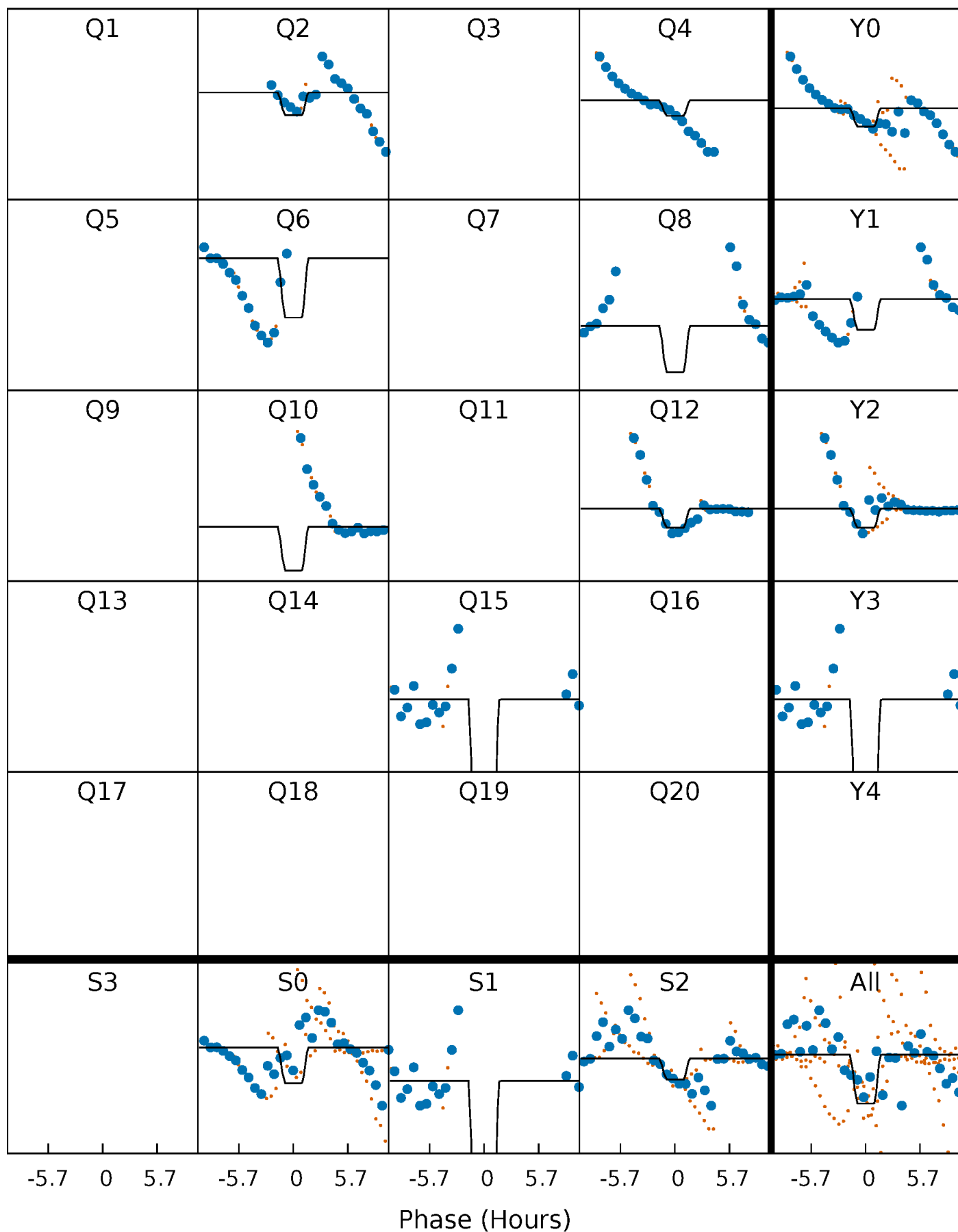
TCE 011036972-08   P=178.823053 Days    $T_0=210.737522$  (BKJD)





# Alt. Detrend Quarter-Phased Transit Curves

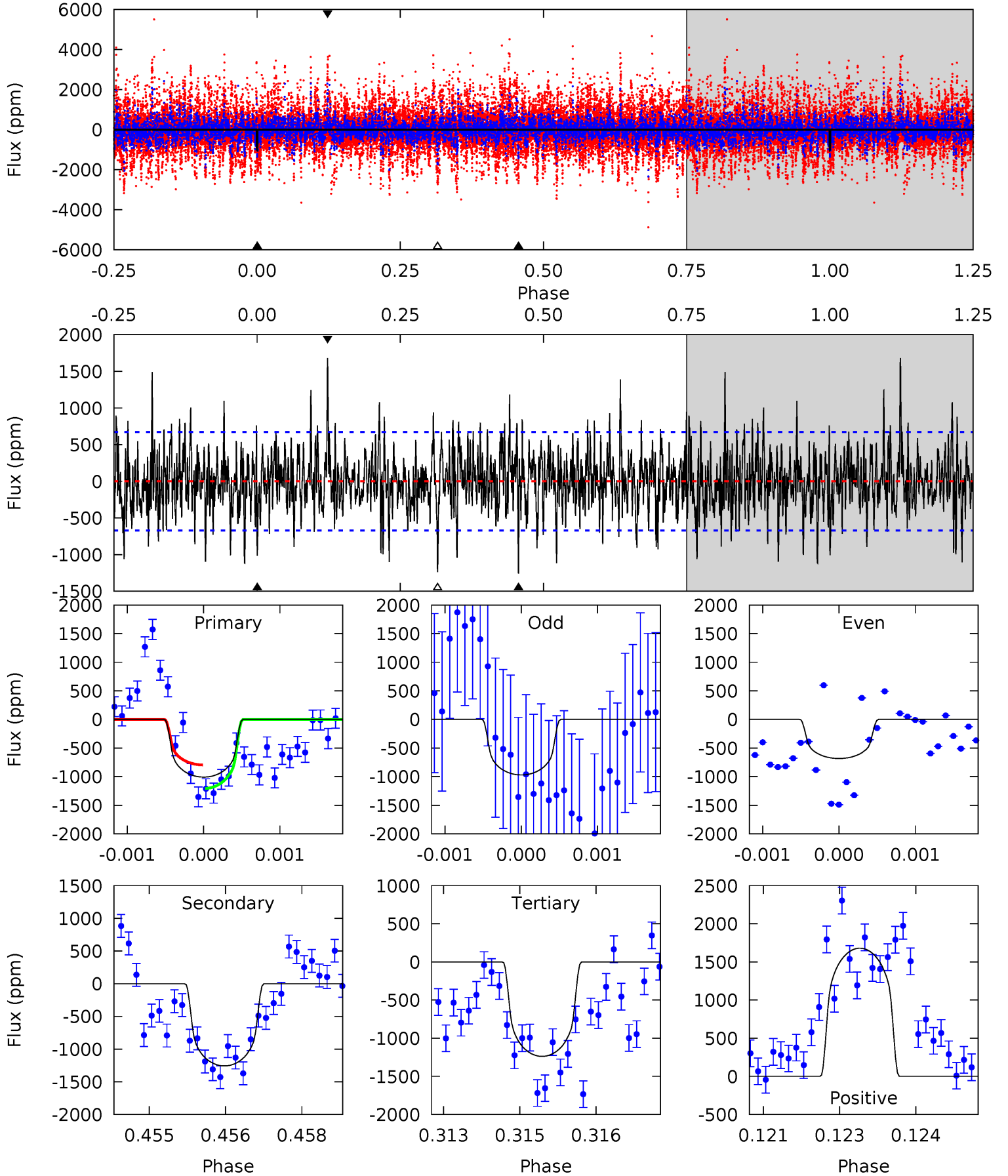
TCE 011036972-08 P=178.818094 Days  $T_0=210.762467$  (BKJD)



# DV Model-Shift Uniqueness Test

011036972-08, P = 178.823053 Days, E = 31.914469 Days

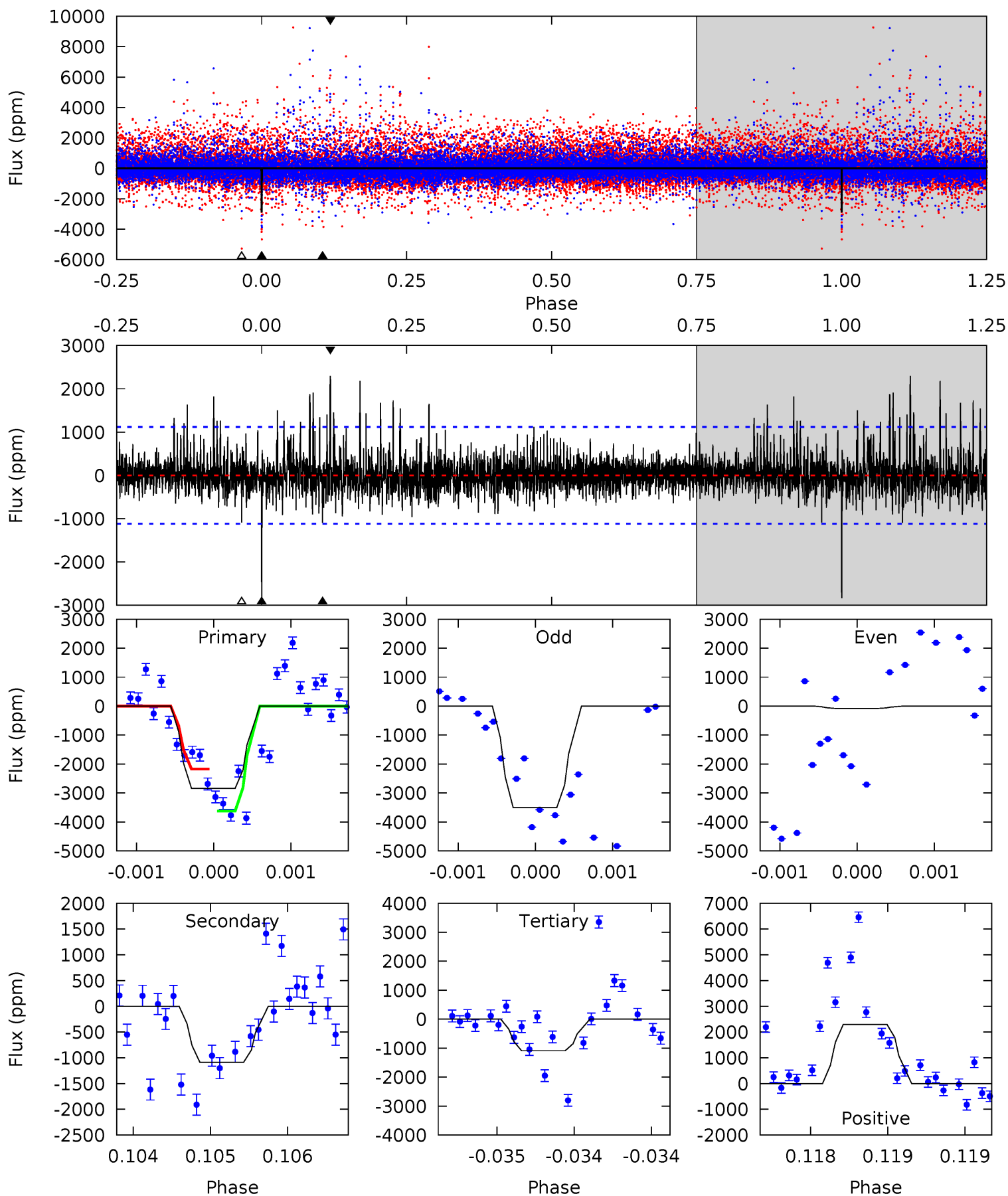
Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
8.10	10.1	9.95	13.5	5.40	3.20	2.76	-1.85	-5.40	0.16	-3.40	1.03	0.69	0.57	1.67



# Alt Model-Shift Uniqueness Test

011036972-08, P = 178.818094 Days, E = 31.944373 Days

Pri	Sec	Ter	Pos	FA <sub>1</sub>	FA <sub>2</sub>	F <sub>Red</sub>	Pri-Ter	Pri-Pos	Sec-Ter	Sec-Pos	Odd-Evn	DMM	Shape	TAT
14.0	5.39	5.38	11.4	5.52	3.40	1.54	8.64	2.67	0.00	-5.97	6.25	0.24	0.45	3.56



### Stellar Parameters For KIC 011036972

	$T_{\text{eff}}(K)$	$\log(g)$	[Fe/H]	$R (R_{\odot})$	$M(M_{\odot})$	$p_{\star} (\text{g}\cdot\text{cm}^{-3})$
	$4955^{+137}_{-1}$	$3.436^{+0.300}_{-0.300}$	$-0.280^{+0.300}_{-0.200}$	$2.977^{+1.638}_{-0.882}$	$0.882^{+0.290}_{-0.134}$	$0.047^{+0.088}_{-0.030}$
	+3%/-0%	+9%/-9%	+107%/-71%	+55%/-30%	+33%/-15%	+186%/-64%
Source	PHO1	KIC0	KIC0	DSEP		

KIC = Kepler Input Catalog; PHO = Photometry; SPE = Spectroscopy; AST = Asteroseismology  
 TRA = Transits; DESP = Dartmouth Models; MULT = Multiple Models

### Secondary Eclipse Parameters for KIC 011036972-08 / KOI

Detrend	Depth (ppm)	$R_p (R_{\oplus})$	$T_{max} (K)$	$T_{obs} (K)$	$A_{obs}$
DV	$-1257 \pm 124$	$11.45^{+7.65}_{-6.31}$	$674^{+84}_{-64}$	$4914^{+2457}_{-787}$	$1955^{+7743}_{-1244}$
Alt.	$-1090 \pm 202$	$18.25^{+7.81}_{-7.11}$	$677^{+88}_{-67}$	$4036^{+779}_{-450}$	$663^{+1111}_{-362}$

$T_{max}$  = Theoretical Maximum Planetary Temperature  
 $T_{obs}$  = Observed Planetary Temperature (Assuming  $A=0.3$ )  
 $A_{obs}$  = Observed Albedo (Assuming  $T=0$ )

If a secondary eclipse is present, the system is likely an EB if  $T_{obs} \gg T_{max}$  AND  $A_{obs} \gg 1.0$

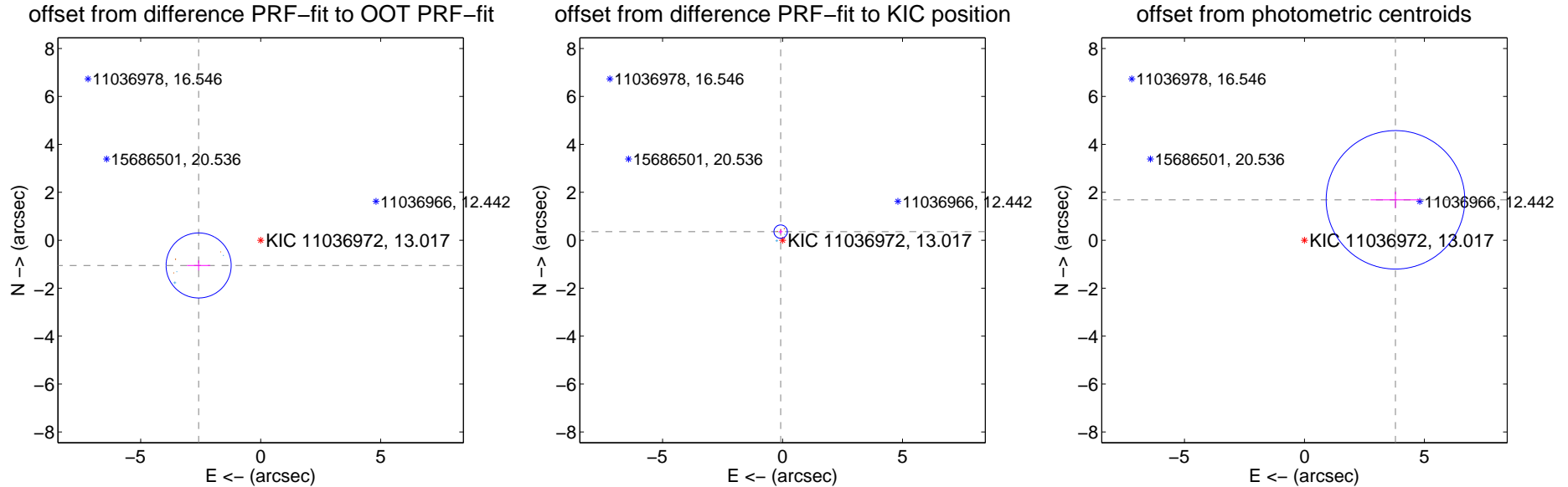
## DV Centroid Data

Supplemental centroid analysis for 011036972-08. Kepler magnitude: 13.02. Transit SNR 5.67

There are 3 quarters with good PRF difference image offsets

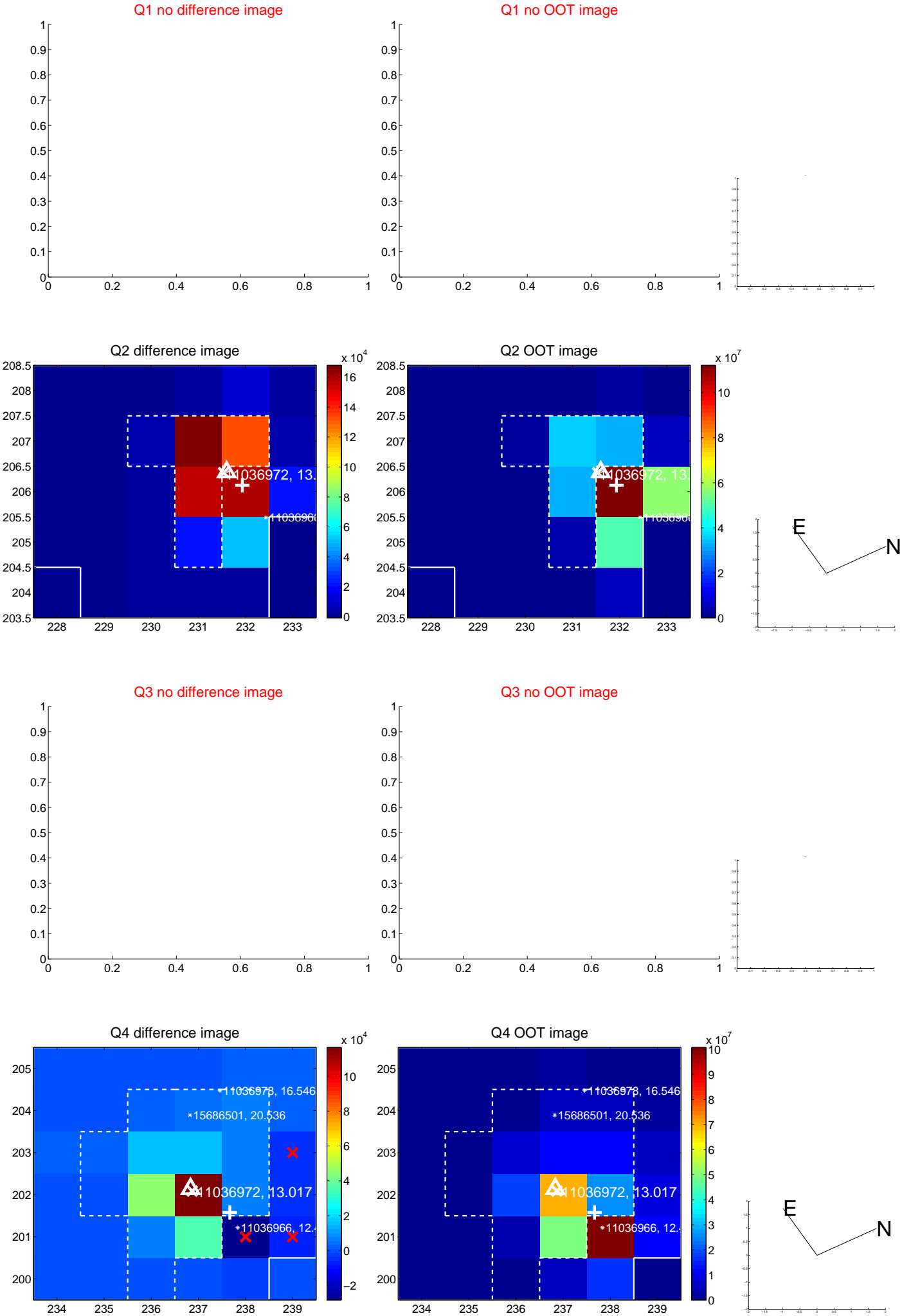
The OOT PRF centroid is offset from the target star catalog position by about 3.84 arcsec so the offset from difference PRF-fit to OOT-fit may be invalid.

	Distance in arcsec	Distance / $\sigma$	$\Delta$ RA	$\Delta$ Dec
PRF-fit source offset from OOT	$2.792 \pm 0.452$	6.17	$2.586 \pm 0.481$	$-1.052 \pm 0.209$
PRF-fit source offset from KIC position	$0.368 \pm 0.093$	3.95	$0.079 \pm 0.084$	$0.359 \pm 0.100$
photometric centroid source offset	$4.15 \pm 0.96$	4.31	$-3.79 \pm 1.04$	$1.69 \pm 0.34$

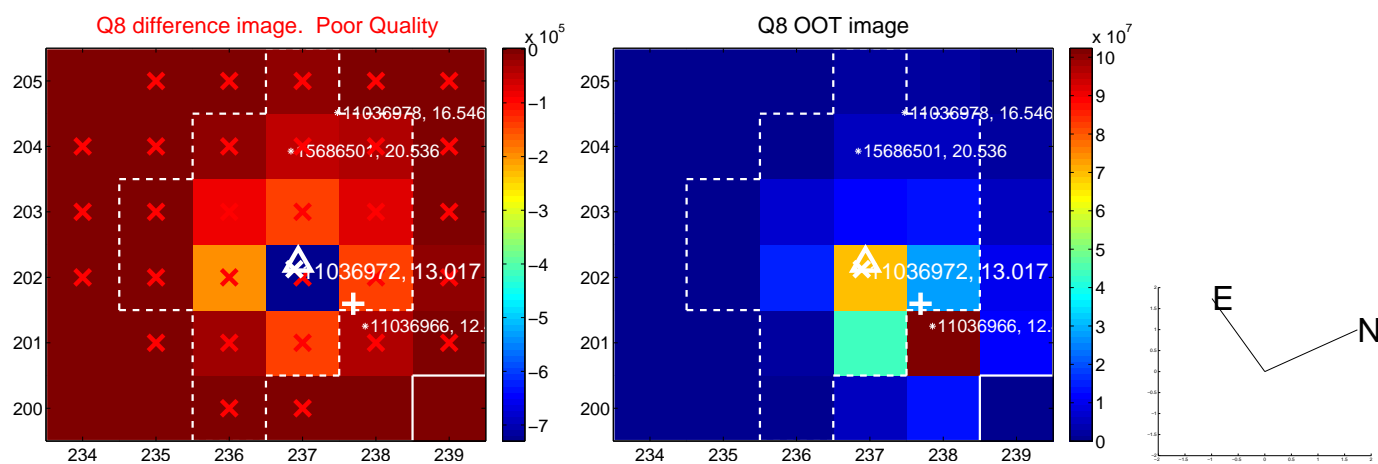
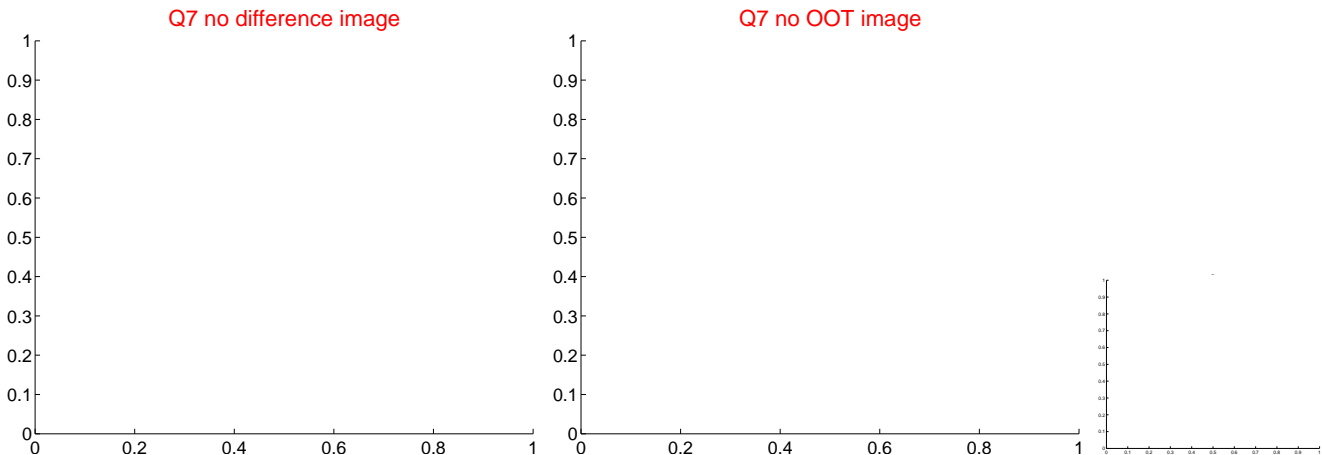
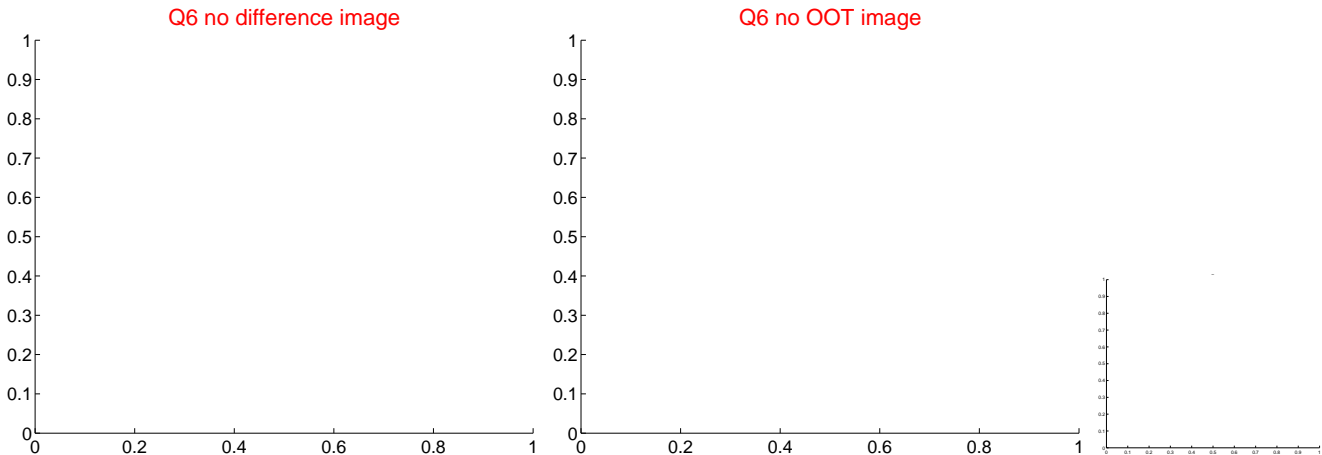
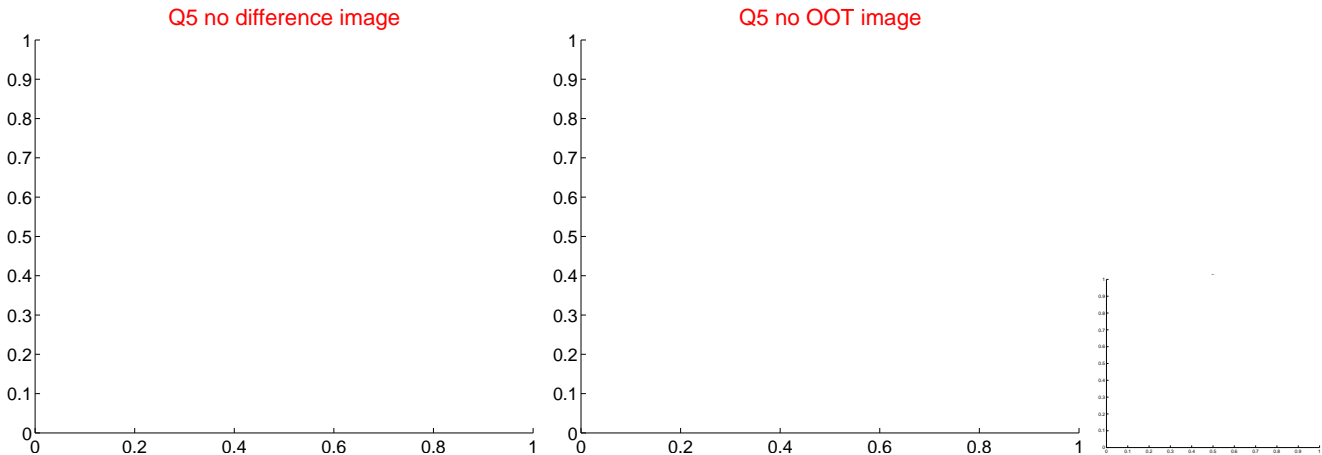


Centroid source offsets from the target star reconstructed from PRF and photometric centroids. **Sky blue crosses: good quarterly centroid offsets; Vermillion crosses: bad quarterly centroid offsets**; magenta cross: average over quarters. Length of the crosses: one- $\sigma$  uncertainty. Blue circle: three- $\sigma$ . Red \*: target star. Blue \*: Other stars. Text next to a star gives its KIC ID and kepmag. KIC IDs > 15,000,000 are from the UKIRT catalog.

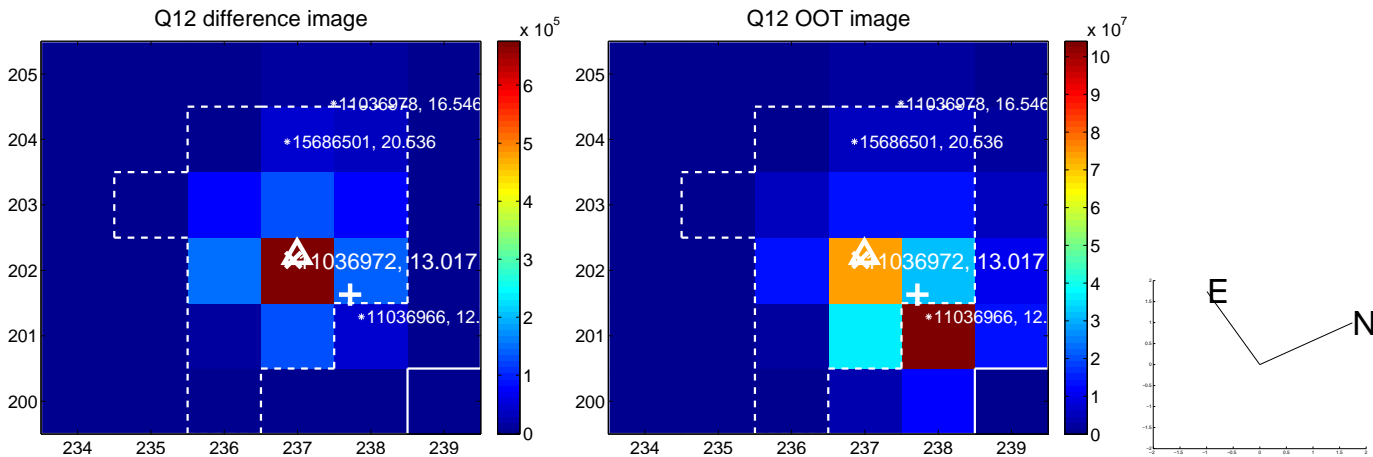
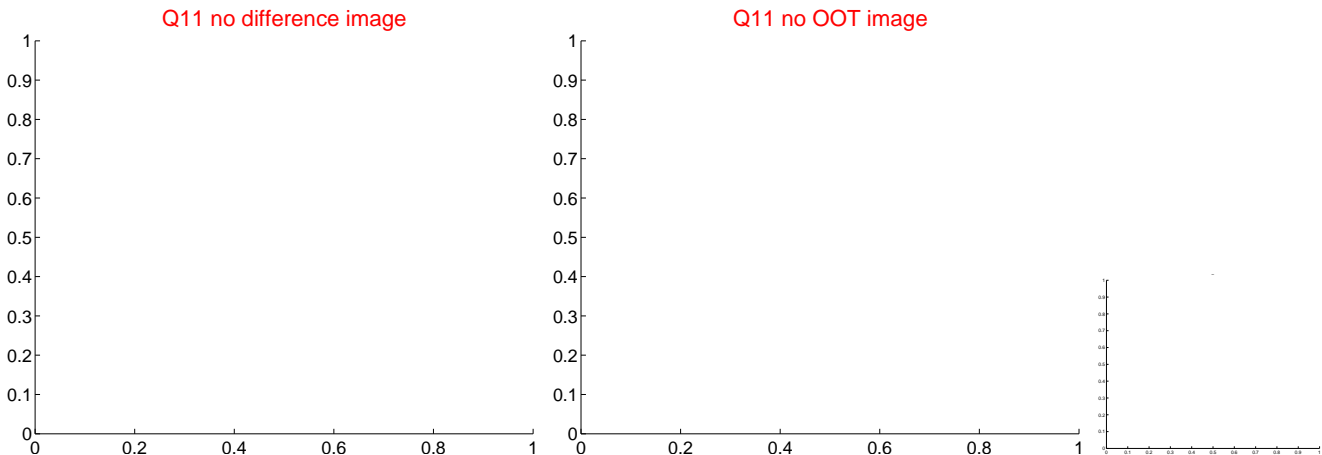
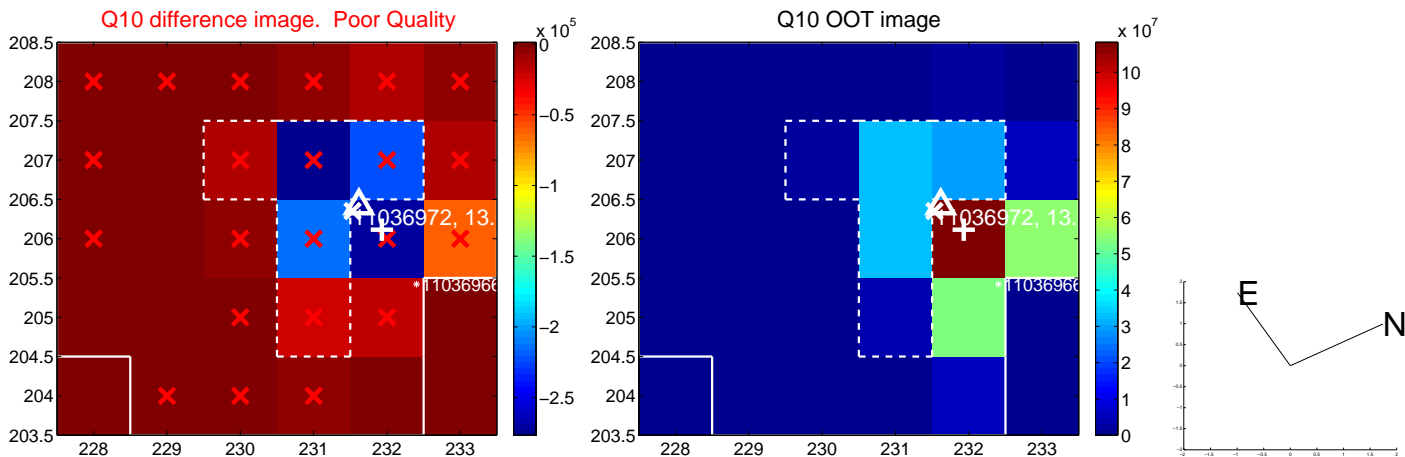
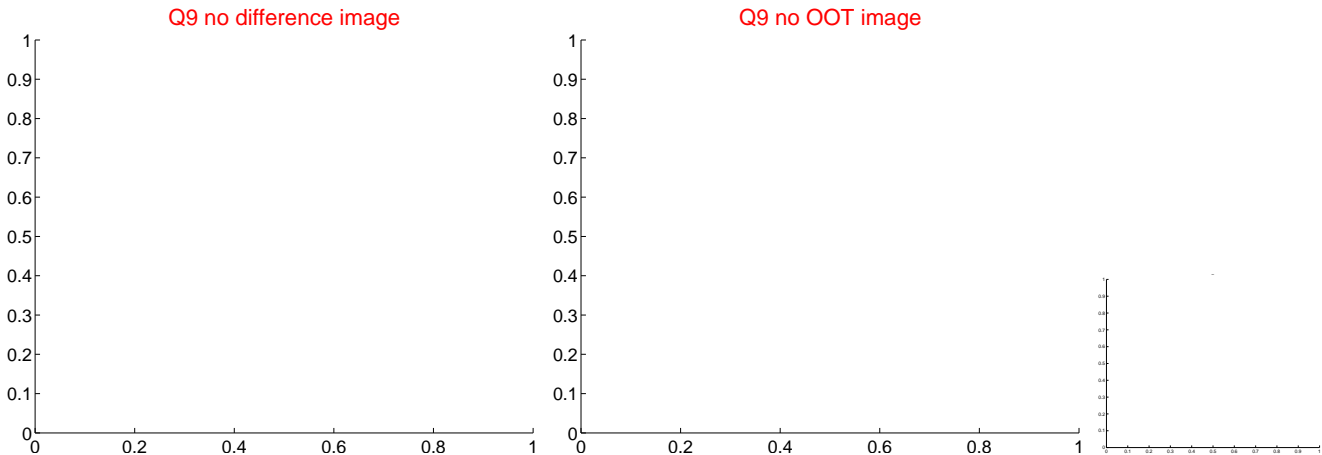
white  $\times$ : KIC target position;  $+$ : OOT centroid;  $\triangle$ : difference centroid. red  $\times$ : large negative pixel value.



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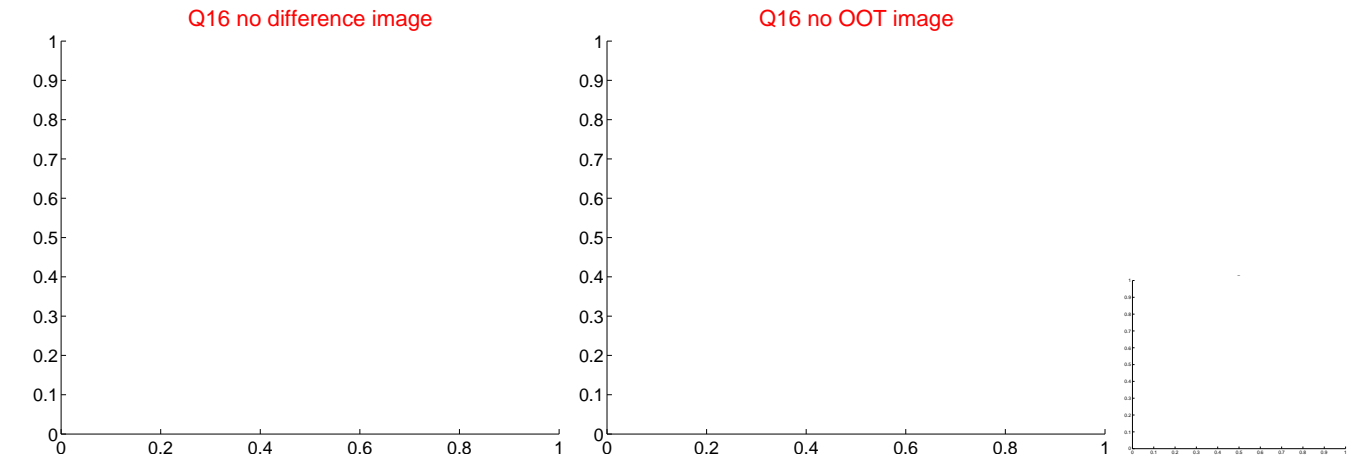
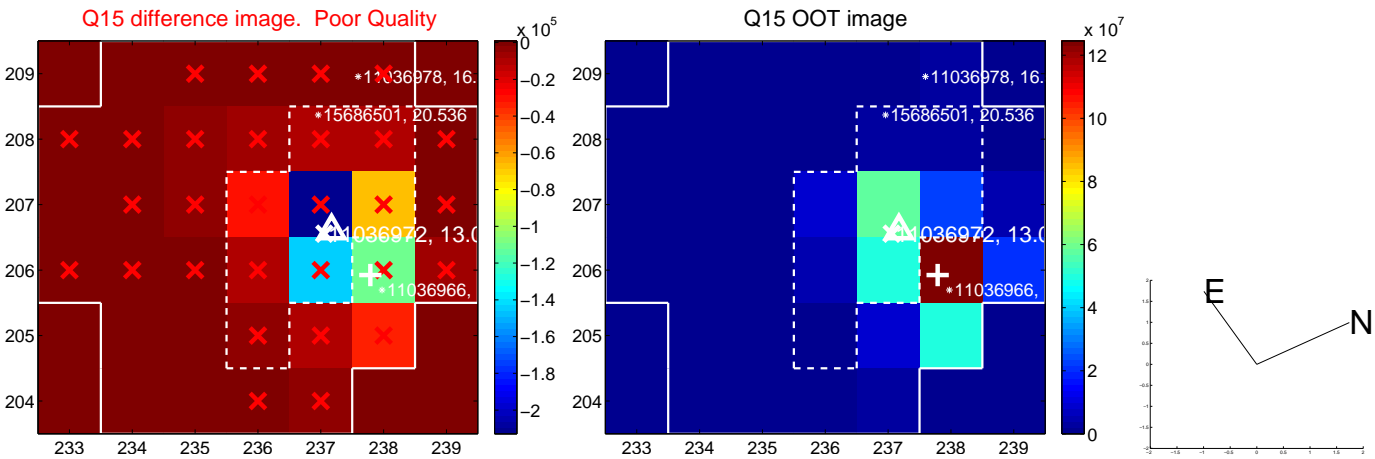
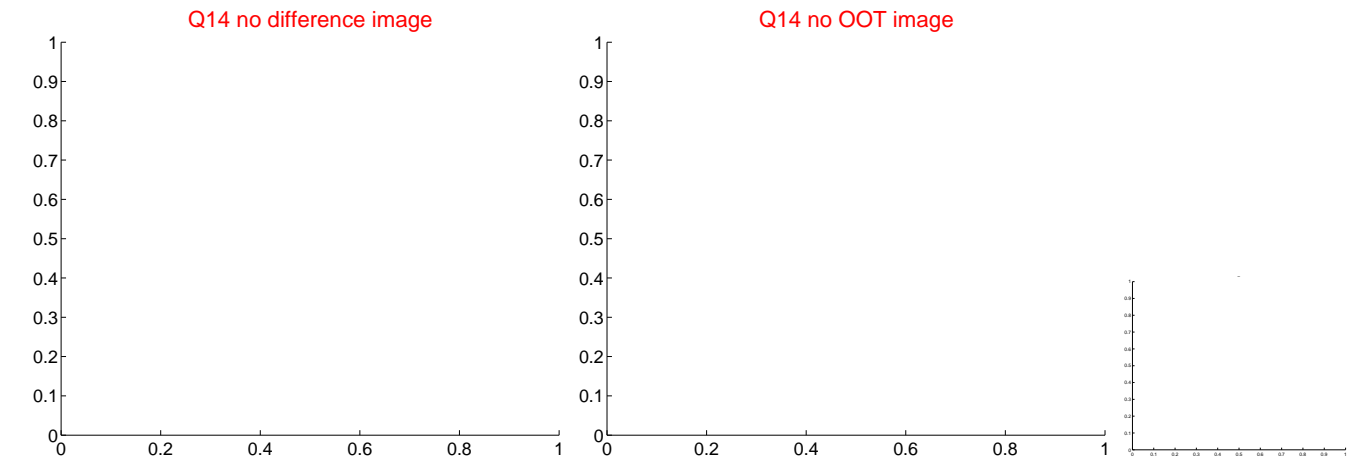
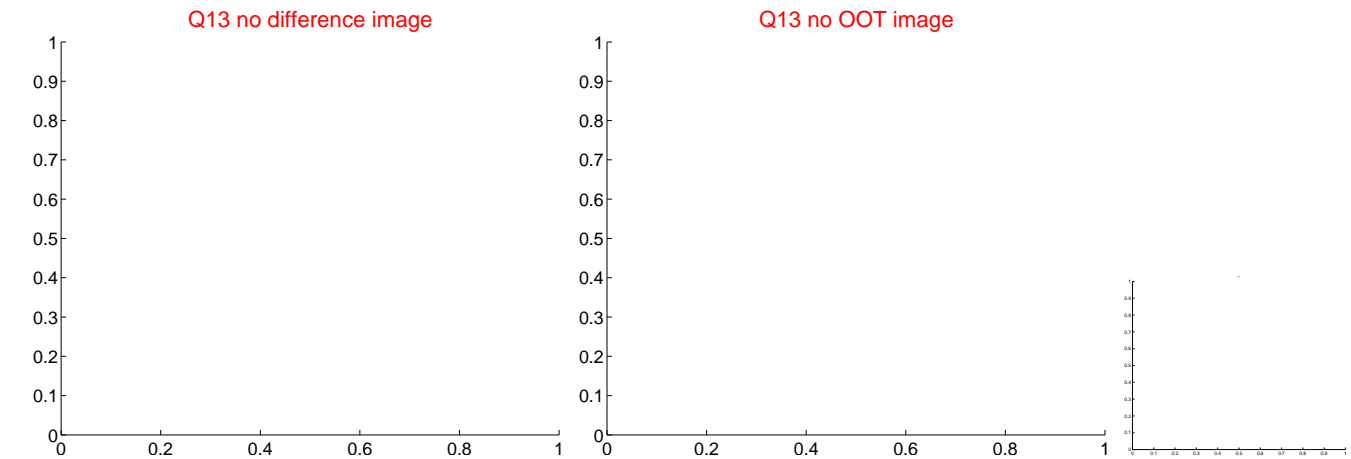


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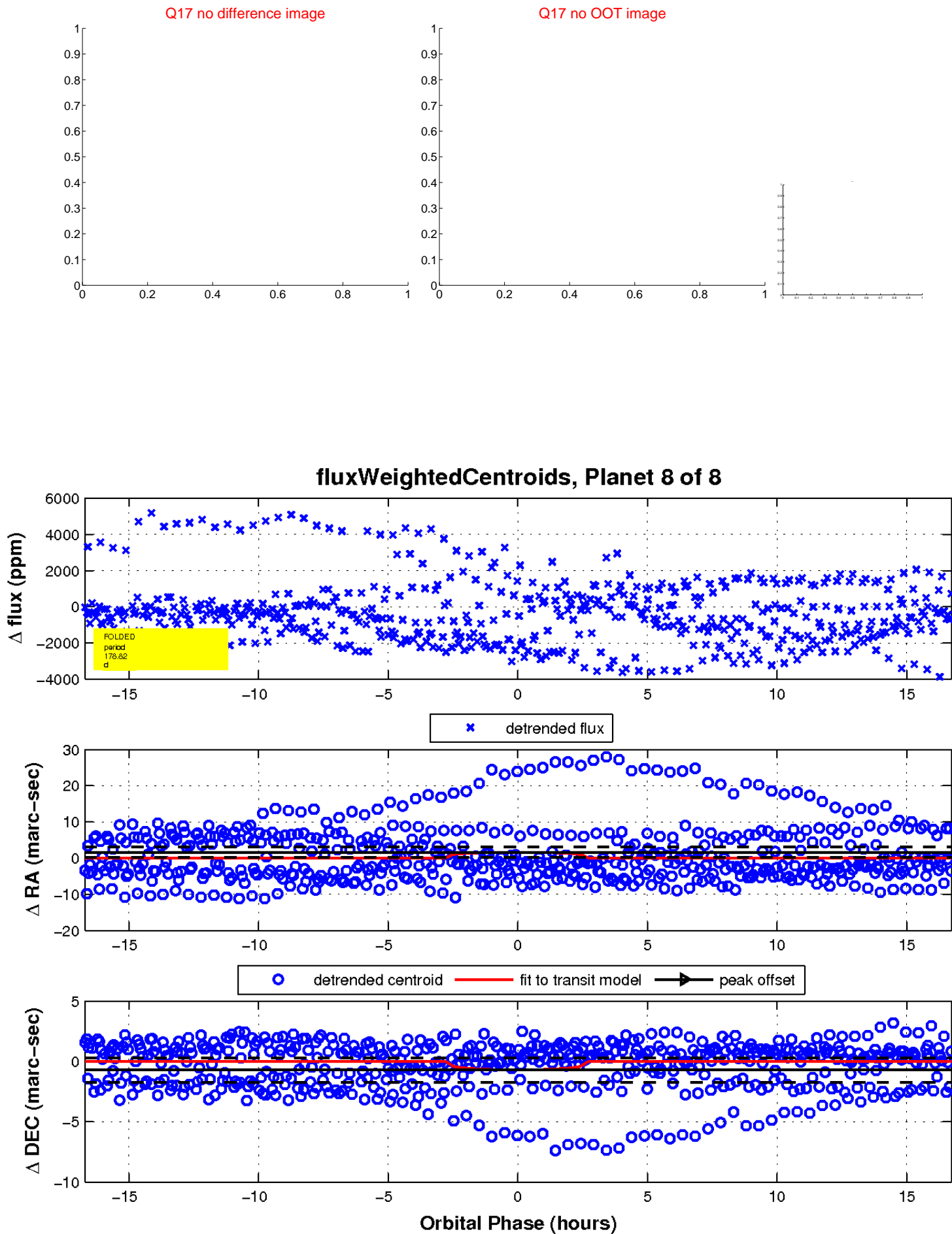




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UKIRT Image

